

Figs. 4 & 5. Lateral and dorsal views respectively of left valve of small adult *Unio*, showing the notches, *x*, produced on each line of growth by the previous constriction caused by the shell-teeth of the *Glochidium*-shell.

Fig. 6. Diagram to show the direction of ciliary currents on external surface of nephridium.

7. Diagram to show valvular action of ventral edge of mantle-flaps. *a, a'*, right and left valves of shell; *b, b'*, right and left mantle-folds; *c, c'*, thickened margins of *b, b'*; *d, d'*, lines of attachment of *b, b'* to *a, a'*. The arrows indicate the direction of water-pressure.

8. Diagram of relation of gill-lamellæ to show how the ova are prevented from falling into the internal gill. *a*, visceral mass; *c*, mantle-flap; *d*, axis of gill; *e*, inner, *er*, outer lamella of external gill-plate; *f*, outer, *fr*, inner lamella of internal gill-plate; *g*, line of concrescence; *i*, suprabranchial space of subpallial chamber.

### 3. On Butterflies collected in Tropical South-western Africa by Mr. A. W. Eriksson. By ROLAND TRIMEN, F.R.S., &c., Curator of the South-African Museum, Cape Town.

[Received December 8, 1890.]

(Plates VIII. & IX.)

Well known for his many years' experience as explorer and hunter in the tropical Interior, and for the zeal and success with which he has collected and observed the ornithological fauna, Mr. Axel W. Eriksson has latterly, at my instance, turned his attention to the insects inhabiting the less known tracts. The collection of which the Butterflies now under notice formed the larger part was made by him during six months—1st August, 1887, to 25th January, 1888—spent in travelling between Ehanda, in the Southern Ombuela (or Ambuella) country, and Omborombongo, in Central Damara-land.

The country traversed may be said in general terms to be bounded, except to the South-west, by the rivers Cunenè, Okavango, and Omaramba-Oamatako, and it extends from North to South over about five and a half degrees of latitude ( $15^{\circ} 15'$  to  $20^{\circ} 45'$  S.), and from West to East almost the same of longitude ( $15^{\circ}$  to  $21^{\circ} 20'$  E.). The route pursued and the time spent in each locality appear from Mr. Eriksson's notes to have been as follows, viz. :—Omrora, "between Ovaquenyama and Ombuela," 1st to 25th August; Ehanda, 26th August to 30th September; Humbe, Cunenè River, October; Omrora again, November; Otiembora, 20th November to 3rd December; the course of the Okavango River, "between the tributaries Omaramba-Caronga and Omaramba-Oamatako," December; the course of the Omaramba-Oamatako, "between its junction with the Okavango and Otjitoë," 2nd to 14th January, 1888; and the course of the same river, "between Otjitoë and Omborombongo," 15th to 25th January. This route is remote from the sea-coast, never

approaching it within 200 miles, while its most eastern point (on the Okavango) is distant from it more than 600 miles.

Hitherto, except to some extent as regards Southern Damara-land, the Rhopalocera of this territory have been very little known, and it is thus of interest to place on record a complete list of the species met with by Mr. Eriksson, with notes of any variation observed in the case of species already described, and descriptions of those forms which appear to be new to science.

The collection, consisting entirely of pinned specimens, arrived in excellent condition. I have found it, on careful examination, to contain 125 species, thus distributed among the several families and subfamilies, viz. :—Nymphalidæ (Danainæ 1, Satyrinæ 2, Acraeinæ 12, Nymphalinæ 23), 38 ; Lycænidæ, 40 ; Papilionidæ (Pierinæ 22, Papilioninæ 4), 26 ; Hesperidæ, 21.

As was to be expected from its geographical position, and from the absence of any intervening barrier of importance, this country exhibits in its butterflies very intimate alliance with extra-tropical Southern Africa, 97 (or nearly four-fifths) of the species being common to both territories. Although the northernmost part of the country collected in is adjacent to the most southern province of Angola (Mossamedes), there seems to be community of species to but a small extent, only 26 of Mr. Eriksson's species appearing in Mr. Druce's list (Proc. Zool. Soc. 1875, p. 406) of Angolan butterflies collected by the late Mr. J. J. Monteiro, and Dewitz (Nov. Act. Leop.-Carol. Deutsch. Akad. 1879) giving but 32 of them among those brought by Pogge from Central Angola. It is further very noticeable that the characteristic tropical West-African genera *Elymnias*, *Ergolis*, *Godartia*, *Euryphene*, *Euphædra*, *Aterica*, *Harma*, *Abisara*, and *Epitola*, all of which have Angolan representatives, are entirely absent from Mr. Eriksson's collection.

At the same time it must be remembered that the series brought together by Mr. Eriksson contains the captures of only a single half-year, and so cannot be looked upon as completely illustrating what the country produces. In remarkable contrast to the Lycænidæ, which are the best represented group, the *Satyrinæ* and *Papilioninæ* seem to be singularly few.

Of the 28 species not known to occur in extra-tropical areas, 11 appear to be undescribed, viz. :—

(Nymphalidæ.)

(Acraeinæ.)

*Acraea felina*.

„ *onerata*.

„ *ambigua*.

(Lycænidæ.)

*Deudorix obscuratus*.

*Aphnæus erikssoni*.

„ *modestus*.

*Zeritis damarensis*.

*Erikssonia* (n. g.) *acræina*.

(Hesperiidæ.)

*Pyrgus secessus.**Pamphila obumbrata.*,, *occulta.*

One of these is the type of a new genus of Lycænidæ, near *Zeritis*, which I have called *Erikssonia* after its discoverer. Next to *E. acraïna*, the most remarkable of the new forms is *Aphnæus erikssoni*, in which, while the structural characters agree with those of the more brilliantly ornamented section of the genus, the colouring is quite unique and exceptionally plain on both surfaces of the wings.

In addition to the new species, I have noted two marked varieties, viz. in the cases of *Crenis natalensis*, Boisdu, and *Papilio morania*, Angas. Seasonal dimorphism is more or less strongly indicated in the cases of *Acræa atolmis*, *Hypolycæna cæculus*, *Aphnæus homeyeri*, *Herpænia eriphia*, *Teracolus subfasciatus*, and *Callidryas florella*.

Among the 16 remaining species not known to extend into extra-tropical Southern Africa, 4 are recorded besides from Angola only, 3 from the Upper Zambesi, 1 each from the Umvuli (Mashunaland), Lake Nyassa, Lake Victoria Nyanza, and Querimba; 4 others combine in their distribution two or more of the above-mentioned localities; and the last (*Charaxes ephyra*) ranges from Mashunaland, south of the Zambesi, to Casamanza, in between 12° and 13° N. lat. on the West Coast.

The rarer or more interesting previously described species are:—*Acræa atolmis*, *A. atergatis*, *A. asema*, *Crenis benguelæ*, *Crenis concordia*, *Pseudacræa poggei*, *Charaxes guderiana*, *Aphnæus victoria*, *A. homeyeri*, and *Abantis zambesina*.

## Family NYMPHALIDÆ.

## Subfamily DANAINÆ.

## Genus DANAIS, Latr.

## 1. DANAIS CHRYSIPPUS (Linn.).

Omrora (August) and Ehanda (September).

The nine examples (only one ♀) are all of the ordinary typical form, but small, the largest expanding 3 in. 3 lin., and the smallest only 2 in. 7 lin.

## Subfamily SATYRINÆ.

## Genus YPTHIMA, Westw.

## 2. YPTHIMA ASTEROPE (Klug).

Omrora (August), Ehanda (August and September), and Okavango River (December).

With the exception of a single dwarf male from the Okavango River, the twenty examples (twelve ♂, eight ♀) are larger than usual (exp. al. 1 in. 6–9 lin.), and of a paler, more hoary grey on the underside

—especially on the hind wing, where the dark vermiculated striation is less developed, and only the median brownish stria apparent. The ocellus of the fore wing varies much in form and size, and the same is the case as regards the ocelli of the hind wing, which also in number vary on the upperside from one to three, and on the underside from two to five (some or all of these latter being often minute, or even reduced to scarcely perceptible fuscous dots). There can, I think, be no doubt that the specimens under notice constitute a variation identical with *Y. granulosa*, Butl. (Ann. & Mag. Nat. Hist. 5th series, xii. p. 101, 1883), from Victoria Nyanza.

### Genus PSEUDONYMPHA, Wallengr.

#### 3. PSEUDONYMPHA BERA (Hewits.).

*Ypthima bera*, Hewits. Ent. M. Mag. xiv. p. 107 (1877).

*Neocenyra*<sup>1</sup> *duplex*, Butl. Proc. Zool. Soc. 1885, p. 758.

Okavango River, between Omaramba-Carongo and Omaramba-Matako (December): Omaramba-Matako (January).

Fourteen examples (nine ♂, five ♀) were taken on the Okavango, and one ♀ on its tributary the Omaramba Matako.

I have referred to this *Pseudonympha* in 'South-African Butterflies' (vol. i. p. 82 note, and vol. iii. p. 395), mentioning its relationship to *P. natalii*, Boisd., and its distinguishing features. Mr. Eriksson's specimens differ a little from those taken by Mr. Selous on the Shashani River, in Matabele-land, in the size and form of the subapical pale rufous patch of the fore wing, which in both sexes is less extended inferiorly (in male not far below second median nervule, and in female attaining first median nervule in one example only), more rounded inwardly, and externally much more sharply indented by the dark edging line near its lower extremity. In the female examples the smaller patch in the hind wing is also less developed about the ocelli.

Besides its close alliance with *P. natalii*, Boisd., this butterfly is also nearly related to *P. neita*, Wallengr. (see 'South-African Butterflies,' i. p. 79, pl. 7. f. 2), but easily recognized by its deeper basal and paler hind-marginal colouring, the ferruginous outer ring of the iris of the ocelli, the totally different shape and external dark edging of the pale rufous subapical patch of the fore wing, and the dark submarginal streak in the hind wing, as well as that close to hind-marginal edge in both wings. On the underside, also, *Y. bera* exhibits in the hind wing two well-marked (subbasal and median) dark striæ wholly wanting in *Y. neita*, and very much more developed subbasal ferruginous-rufous marks on costa and inner margin.

<sup>1</sup> I am of opinion that this genus cannot be adopted, all the characters given as distinctive by the founder—while they separate it from *Cenyra*—being identical with those presented by *Pseudonympha*.

Hewitson's description is not sufficiently detailed to allow of *certainly* identifying his *Ypthima bera* with Mr. Butler's species. Should comparison with the type prove the two to be distinct, Mr. Eriksson's specimens will stand as *Pseudonympha duplex* (Butl.).



## Subfamily ACRÆINÆ.

## Genus ACRÆA, Fabr.

## 4. ACRÆA ATOLMIS, Westw. (Plate VIII. figs. 1 ♂, 2, 3 ♀, 4 ♂.)

♂. *Acraea atolmis*, Westw., App. Oates' 'Matabele-land, &c.' p. 343, pl. F. ff. 3, 4 (1881).

Var. ♀. *Acraea acontias*, Westw. l. c. p. 345, pl. F. ff. 7, 8.

Omrora (1st to 25th August, and [var. *acontias*] November), Ehanda (26th August to 30th September), Otiembora (20th November to 2nd December [var. *acontias*]), and Okavango River (December [var. *acontias*]).

The male figured and described by Prof. Westwood was evidently not only faded (the fate of all red *Acraeæ* within a few months after death) but discoloured. The twenty male examples collected by Mr. Eriksson, exhibited, on 16th July, 1888 (from ten to eleven months after capture), an upperside of *uniform vivid vermilion-red with a very slight rosy surface-gloss*; while on the underside the greater part of the fore wing and the basal internervular marks of the hind wing were of a soft rose-pink, and the internervular rays in the outer part of both wings were reddish orange (as shown in Westwood's figure of the underside of the female *Acontias*). Judging from my experience of other red *Acraeæ*, the living *A. atolmis* must be of extreme brilliancy of colour, seeing how exceptionally rich and intense the red remains in specimens nearly a year old.

The spots on the upperside of the male present considerable variation in size and development: in the fore wing, the spot nearest the posterior angle varies much in size, and in three examples is obsolescent, and in four other specimens there is a small additional subbasal spot below median nervure, while two of the last-mentioned four, and two other examples, also display a more or less distinct inner-marginal spot (as usual in the var. *acontias*) beyond the middle; in the hind wing both the subbasal and median series of small spots exhibit every gradation from full development and number (4 and 6 respectively) to fragmentary indication by two or three scarcely perceptible dots. On the underside this variation is not so great, the basal and subbasal spots of the hind wing especially being pretty constant.

The female, of which 10 examples were taken by Mr. Eriksson, agrees with the most strongly-marked males in all the black spots, but exhibits an entirely opposite constancy in those markings; only one of the two occasional additional spots (that on inner margin of fore wing) occurring in one specimen. The colouring is, however, *not only very different from that of the male but also highly variable, from dull reddish ochreous to almost ashy brownish grey*, the intermediate examples being dull ochreous-brown with a rufous tinge. In the fore wing, the apical area is duller and also marked by indistinct internervular dull ochreous rays, while on the inner edge (immediately beyond the four or five upper spots of the discal series) there is an oblique ill-defined *bar of paler ground-colour*, which becomes more expressed in the darker examples, until in the

darkest it is *whitish* and conspicuous. On the underside, the pattern is in complete agreement with that of the male, except that in all examples there is more or less narrow representation of the whitish subapical bar in the fore wing; but the colouring is always very much duller, varying in accordance with the tint of the upperside, until in the darkest example there remains no trace of the pink colouring observable in the more reddish specimens.

I place *A. acontias*, Westw., as a variety of *A. atolmis*, because the material (10 male and 7 female examples) afforded by Mr. Eriksson's collection makes its separation—warrantable enough when only a single female example was forthcoming—no longer possible. The males are of a rather less vivid red than the typical male *atolmis*, the females of similar variable dull reddish-ochreous and ochreous-brown tints to those presented by the typical female *atolmis*, except that the extreme form of almost ashy brownish-grey with pronounced subapical whitish bar in the fore wing is not among them. The conspicuous distinction from typical *atolmis* in both sexes is *the enlargement of all the black markings*, viz. the basal suffusion, the cellular and discal spots<sup>1</sup>, the hind-marginal edging (especially in the hind wing), and the clouding of the nervules. In connection with the widening of the hind-marginal edging in the hind wing, the underside presents a distinguishing character (mentioned by Westwood in his description of the female), viz., *an additional hind-marginal black line, parallel to and a little before the line actually edging the hind margin*. This feature led me at first to think that *A. acontias* might be kept separate from *A. atolmis*; but on close examination of all the examples of typical *A. atolmis*, I found more or less distinct beginnings of the additional black line in no fewer than two males and five females, its most developed condition—that of a very slender line regularly interrupted on the nervules—being in the generally most heavily black-marked of all the twenty males.

I think it highly probable that we have in this instance a case of seasonal dimorphism, and that *A. acontias* is simply the later (or summer) brood of *A. atolmis*. From the dates furnished by Mr. Eriksson it is clear that typical *A. atolmis* was captured between 1st August and 30th September, while *A. acontias* was taken in November and December (14 of the 17 examples between the 20th November and 2nd December). Two of *A. acontias*—the most heavily-marked male and one of the two most heavily-marked females—were taken in the same locality (Omrorra) as the bulk (21 examples) of *A. atolmis* in the preceding August.

*Exp. al.* (♂) 1 in. 9–11½ lin.; (♀) 1 in. 9–11 lin. Var. *acontias* (♂) 1 in. 10 lin. to 2 in. 1 lin.; (♀) 1 in. 10 lin. to 2 in. 1 lin.

This species occurs as far to the eastward as the Victoria Falls of the Zambesi, 30 miles to the south of which it was taken by Mr. F. U. Barber (who sent me two typical males and one approaching

<sup>1</sup> In the fore wing, of the two additional spots occasionally found in typical *atolmis*, that on the inner margin is invariably present, but the subbasal one is absent in three of the males and in all the females.

the var. *acontias* in 1875), and near which the late Mr. F. Oates also met with it at about the same date. Mr. F. C. Selous also took two typical males in 1889, at a point a little south of the junction of the Chobe and Zambesi.

5. *ACRÆA ATERGATIS*, Westw.

♀. *Acraea atergatis*, Westw. App. Oates' 'Matabel-land, &c.' p. 342, pl. F. ff. 1, 2 (1881).

Omrora (August) and Ehanda (26th August to 10th September).

This species, of which nine males and six females were collected by Mr. Eriksson, is allied to *A. atolmis* (coming between that species and *A. doubledayi*, Guér.); but the male exhibits none of the brilliant red tint, being but little brighter than the female, which is of about the same reddish ochreous as the least dull females of *A. atolmis*. The male has, however, a tinge of salmon-red, and is further distinguished from the female by larger size, longer fore wings (more produced apically), and longer abdomen, which is silky ochre-yellow, without black spots beneath, and conspicuously white laterally on its apical half (except on the terminal segment). Both sexes of *A. atergatis*, and especially unworn examples, present a singular distinguishing character on the *underside* of the hind wing and of the apex of the fore wing, viz., *an ashy-grey—in very fresh examples a bluish-or violaceous-grey—somewhat shifting surface tint*. The lunulated black line preceding the hind-marginal black edging-line on the underside of the hind wing is exceedingly unstable in both sexes, varying from complete development to a mere trace close to the apex.

*Exp. al.* (♂) 2 in.  $0\frac{1}{2}$ – $2\frac{1}{2}$  lin.<sup>1</sup>; (♀) 1 in. 11 lin. to 2 in. 1 lin.

As in the case of *A. atolmis*, the type of this species is a specimen collected near the Victoria Falls of the Zambesi by the late Mr. F. Oates; and a male example taken by Mr. F. U. Barber about 30 miles south of the Falls was sent to me in 1875. In 1889 I received from Mr. F. C. Selous two males captured at a point a little south of the junction of the Chobe and Zambesi.

6. *ACRÆA FELINA*, n. sp. (Plate VIII. figs. 5♂, 6♀.)

Nearly allied to *A. atolmis* and *A. atergatis*, Westw.

*Exp. al.* (♂) 1 in.  $10\frac{1}{2}$ – $11\frac{1}{2}$  lin.; (♀) 1 in.  $11\frac{1}{2}$  lin. to 2 in.  $0\frac{1}{2}$  lin.

♂. *Pale soft brick-red, with good-sized black spots and narrow black margins*. *Fore wing*: nervules with black clouding as in *atolmis* and *atergatis*, but *no apical internervular black striæ* as in the latter species; spots in size and general arrangement as in *acontias* var. of *atolmis*, except that (1) the 4th spot of discal series is more beyond the 3rd and strongly crescentic; (2) the 6th spot is not so far beyond the 5th and more elongate; (3) the 7th spot (only faintly present in two specimens) is oblique, slender, and much nearer to base; (4) the subbasal spot below median nervure is much larger and sagittate or strongly crescentic; and (5) *near hind margin there are two additional spots*, one on each side of first median nervule,

<sup>1</sup> A dwarfed male from Ehanda expands only 1 in.  $9\frac{1}{2}$  lines.

as in *A. atergatis*, but considerably larger and crescentic; costal and hind-marginal black edging and basal streak and suffusion about as wide as in the *acontias* var. of *A. atolmis*. *Hind wing*: basal black as in *acontias*, but *no black on nervules*, and position and arrangement of subbasal and discal series of spots like that in *A. atergatis*, except that in the discal series the 7th spot is considerably beyond the 6th; hind-marginal black edging about as wide as in *A. acontias*, but *its inner side unequally indented by ground-colour on nervules*. *Cilia* creamy white. **UNDERSIDE**.—Colouring much as in *A. acontias*, but duller as regards the ground-colour of fore wing and the basal and subbasal internervular markings of hind wing, which have scarcely any rose-pink tinge. *Hind wing*: nervules not black; reddish-pink markings before discal series of spots, and submarginal internervular ochreous-orange rays, much reduced, fainter, in one example the latter almost obsolete; black line preceding hind-marginal edging one regularly festooned throughout.

♀. Very like male; markings altogether similar—in one (the darkest) example all larger; ground-colour in one specimen paler, more inclined to salmon-pink, in the other two specimens a good deal duller, tinged with ochreous-brown. **UNDERSIDE**.—Hind wing and apical area of fore wing of a paler creamy-yellow ground-colour than in male; reddish area of fore wing pinker than in male in the pale specimen, but duller in the brownish-tinged ones.

In two of the males and in the darkest female there is a longitudinal black suffused streak in the fore wing between the subbasal discal spot and the 6th spot of the discal series, and in the latter example there is also a fuscous suffusion along the inner margin. This darkest female also presents on the penultimate abdominal segment a rather large laterally-winged horny appendage, which is wholly absent in the two other females<sup>1</sup>.

Humbe, Cunené River (October); Omrora (November); Otiembora (20th November to 3rd December); Okavango River (December).

Four males and three females only were collected by Mr. Eriksson. Both sexes have the fore wings more rounded and less produced apically than is the case in *A. atolmis* and its variety *acontias*, and in comparison with *A. atergatis* this distinction is of course more marked.

#### 7. *ACRÆA AXINA*, Westw.

♂. *Acræa axina*, Westw. App. Oates' 'Matabele-land, &c.' p. 344. n. 33, pl. F. ff. 5, 6 (1881).

♂ ♀. *Acræa doubledayi*, Guér., var. B, Trimen, S.-Afr. Butt. i. p. 148 (1887).

Omrora (August and November) and Okavango River (December). Five male and three female examples.

On re-examination of the available material, in comparison with that supplied by Mr. Eriksson, I consider that species-rank may be

<sup>1</sup> It is remarkable that not one of the sixteen females of *A. atolmis* and its variety, or of the six females of *A. atergatis*, possesses any traces of a similar appendage. More observations are much needed for ascertaining whether this appendage is congenital in the female *Acrææ* that exhibit it.



accorded to *A. axina*, Westw., as the great difference in size and the absence of the two submarginal spots near the posterior angle of the fore wings appear to be constant over a wide stretch of territory, from Omrora as far eastward as Mashuna-land, and south-eastward to the Limpopo and Marico rivers on the N.W. boundary of the Transvaal. The males captured by Mr. Eriksson agree in their deeper colouring and less transparency much more closely with the description and figures of the two type-specimens from Tati and Gwailo rivers, than they do with the other eastern specimens taken by Mr. Selous at the Shashani River (between those two localities) and at several stations to the south of Tati as far as the Marico. Singularly enough, on the other hand, a Damara-land male, collected by Mr. John A. Bell, closely resembles the paler and more diaphanous examples received from Mr. Selous. The females in Mr. Eriksson's collection are also more warmly coloured and usually larger than the eastern examples, and in them the subapical bar is not white or whitish, but only of a paler tint than the ground-colour. In both sexes, Mr. Eriksson's specimens exhibit much more fuscous basal clouding than any other examples that I have seen; and in this and in their other peculiarities are further from *A. doubledayi*.

*Exp. al.* (♂) 1 in. 8-11 lin.; (♀) 1 in. 8-10 lin. The females are not only smaller (as usual in this group of *Acræa*), but have a tendency to a dwarfed condition; two of Mr. Selous' specimens expanding only 1 in. 7 lin., and another, as well as one brought from Damara-land by Mr. Bell, reaching an expanse of but 1 in. 6 lin.

8. *ACRÆA ONERATA*, n. sp. (Plate VIII. figs. 7 ♂, 8, 8 a ♀.)

Allied to *A. axina*, Westw.

*Exp. al.* (♂) 1 in. 8 lin.; (♀) 1 in. 8-8½ lin.

♂. *Pale creamy reddish ochreous* (a tinge of pink in hind wing), with moderate-sized black spots; hind wing with seven large spots of the ground-colour in rather wide black hind-marginal border. *Fore wing*: base very narrowly black; a very narrow sublinear costal blackish edging from before middle, somewhat widening at apex; a very narrow hind-marginal blackish edging, becoming finely linear below first median nervule, its inner edge somewhat dented on the nervules, which are very finely black-marked in apical area and partly so (externally) below that area; black spots in number and disposition as in *axina*, except that the lowest spot in discal series is minute, and, instead of being a little nearer base, lies considerably nearer hind margin than the spot immediately above it. *Hind wing*: basal blackish, darker than in *axina*, and scarcely rising above costal nervure; subbasal cellular spot elongate, crescentic, separate from basal blackish; no spot on upper discocellular nervule; in very irregular discal series of spots the 1st, 5th, and 7th are rather remote from the rest, which are considerably beyond them, and of which the 6th is minute and obsolescent; spots in hind-marginal border very distinct, the first and last smaller than the rest and not rounded. *UNDERSIDE*.—*Much paler, of a softer and more creamy tint; in hind wing, an inferior basal patch and the*



*enlarged spots of hind-marginal border very pale yellowish. Fore wing:* apical area somewhat tinged with orange-ochreous; apical and hind-marginal edging reduced to a very fine black line, immediately preceded by an interrupted thin streak of very pale yellowish; spots as on upperside. *Hind wing:* a general pinkish suffusion, stronger near base, fades into very pale yellowish a little before hind-marginal border; basal pale yellowish patch marked by five very conspicuous black spots, viz. two (cellular and infra-cellular) close to base, and three (the 2nd, 3rd, and 4th of a strongly curved, almost continuous series of four) subbasal; 6th and 7th spots of discal series more distinct than on upperside; pale spots of hind-marginal border sharply defined and very conspicuous.

♀. *Paler, duller (in one of the two examples not reddish); fore wing with a brownish tinge throughout, and with a wide basal fuscous shade;* hind wing with basal blackish not so dark, but extending to costa and to subbasal crescentic cellular spot; markings as in male. **UNDERSIDE.**—As in male, but in the duller specimen much fainter in tint, and in the brighter one with the pale yellowish preceding hind-marginal border of hind wing wider. No abdominal appendage in the brighter specimen, *but a singularly large one in the duller specimen*, with such strong anteriorly-recurved lateral expansions as to resemble a short, very broad, partly unrolled haustellum of *Acherontia*.

In addition to the various distinctions from *A. axina* mentioned in the foregoing description, *A. onerata* in both sexes differs in its smaller size, less produced fore wings, and (more especially in the male) much shorter and blunter abdomen; the small spot on costa at base is also wanting in both fore and hind wings; and the internervular subapical fuscous striæ are absent in the fore wings.

The male *A. onerata* also wants the basal fuscous clouding of the fore wings and the white terminal half of the abdomen—both conspicuous features in the male *A. axina*.

Okavango River (December). Three examples: a male and two females.

9. *ACRÆA ASEMA*, Hewits. (Plate VIII. figs. 9 ♂, 10, 10 a ♀.)

*Acræa asema*, Hewits. Ent. M. Mag. xiv. p. 52 (1877).

Omrora (August), Ehanda (August and September), Humbe (October), and Otiembora (20th November to 3rd December). Twelve male and seven female examples.

As the late Mr. Hewitson (*loc. cit.*) did not sufficiently describe this species, and as the butterfly seems to be still scarce in collections, I think it well to give the following description of both sexes:—

*Exp. al.* (♂) 1 in.  $9\frac{1}{2}$  lin. to 2 in.  $1\frac{1}{2}$  lin.<sup>1</sup>; (♀) 1 in. 9 lin. to 2 in.

♂. *Yellow-ochreous (without any red tinge), with small black spots; bases conspicuously but not very broadly suffused with black; hind-marginal black border linear in fore wing (except at apex), but*

<sup>1</sup> Of two dwarfed males, one (from Humbe) expands no more than 1 in.  $7\frac{1}{2}$  lin., and another (from Otiembora) only 1 in. 5 lin.

*more or less broad in hind wing. Fore wing*: basal black variable in width, but always very narrow costally; a transversely elongate subbasal spot (in three examples divided across the middle) below median nervure; a similar marking in discoidal cell about or a little before origin of 1st median nervule, and another, more oblique and usually thinner, at extremity of cell; in the highly-irregular discal series of seven spots, the first four form an *outwardly-arched* narrow subcostal macular bar at some distance beyond cell, the fifth is apart from and a little beyond the 4th, the 6th is much nearer base and situated directly under terminal cellular spot, and the 7th a little beyond the 6th; in three examples an 8th spot (before the 7th) on inner-marginal edge; a *submarginal series of five spots, of which the upper three (between upper radial and 2nd median nervules) are in a straight line directed outward inferiorly*, while the remaining two (of which the lower is usually geminate) are about equidistant from hind margin; a linear black edging along costa; sublinear hind-marginal edging exceedingly attenuated at posterior angle but moderately (in three examples considerably) widened at apex. *Hind wing*: basal black widest on either side of median nervure, and not extending to costal or inner-marginal edge; a spot in discoidal cell beyond its middle; a very irregular discal series of eight spots, of which the 2nd, 3rd, 5th, and 7th (usually geminate) are considerably beyond the rest; all these spots are seldom present, the inferior ones being especially liable to disappear, and in two examples only the minutest traces of two spots are visible; hind-marginal border very variable, not only in its width but in the regular or irregular nervular indentation by ground-colour of its inner edge, and in the presence or absence of 7 dull-yellowish spots (the latter are distinct in two examples, indistinctly traceable in five, and wanting in the remaining five). *Cilia* white in fore wing, whitish in hind wing. **UNDERSIDE.**—Considerably paler (especially hind wing and apical area of fore wing), with markings mainly as on upperside; but no basal black, and hind-marginal border of hind wing with seven conspicuous yellowish-white spots. *Fore wing*: in examples where apical widened blackish edging is broader than usual, that expansion contains a series of three yellowish-white spots. *Hind wing*: at base itself a black mark; in five examples a small spot close to base on costal lobe; a subbasal discocellular spot, and a curved irregular row of five spots (of which the 2nd is an outer discocellular one).

♀. *Like male, but usually considerably duller and browner in tint, and with hind wing markedly paler; spots not so black; basal suffusion not black but greyish-fuscous, variable in extent (in two examples obsolescent).* *Fore wing*: the eighth (inner marginal) spot of discal series present in five examples. **UNDERSIDE.**—Hind wing and apical area of fore wing more distinctly paler than rest of fore wing, in some specimens creamy yellowish. *Fore wing*: in apical area indistinct yellow-ochreous internervular rays.

*Abdomen* in both sexes white, tinged with canary-yellow laterally and ventrally; but dorsally, from base to a point on third segment,

black in male, and fuscous, marked basally with two white spots, in female. Inferior corneous appendage on penultimate segment present in six of the seven females, but perfect in two only; very singular in shape, its anterior margin bearing a flattened rather narrow, elongate process, directed infero-posteriorly, and armed with two slender acute horns or strong spines at its extremity (giving it much the aspect of the forcipated abdominal extremity of a *Forficula*).

The females present as much variation in marking as the males, and in two examples their ground-colour is as bright. In a still united pair, captured *in coitu* at Humbe by Mr. Eriksson, I found the male to be a very well-developed and fully-marked individual, while the female was the smallest taken, wanted all the black spots in the hind wings and had only five very minute ones in the left fore wing, while the right fore wing was aborted, consisting only of a thickened stump. In this female alone was the peculiar abdominal appendage wholly wanting, but in four others it was more or less broken or distorted.

The chief distinguishing characters of *A. asema* are emphasized by italics in the above description, and it is interesting to find that two of the most unusual of them, viz. the subapical portion of the submarginal series of spots in the fore wings and the apical yellowish-white spots which occur on the underside of the fore wings whenever the dark edging is sufficiently widened to contain them, are features that recur in the very different-looking, heavily black-marked *A. violarum*, Boisd. From the somewhat similar *A. doubledayi*, Guér., it is easy to separate *A. asema* by its more opaque wings and their peculiar ochre-yellow tint, by its very small spots, and by the two characters just referred to as recurring in *A. violarum*, as well as by the entire absence of any internervular red marking on the underside of the hind wings; while the female is still further distinguished by the total absence of a subapical white bar in the fore wings.

Mr. Hewitson's specimens were sent by Messrs. Thelwall and Simons from Lake Nyassa, where the species is stated to be rare.

#### 10. *ACRÆA AMBIGUA*, n. sp. (Plate IX. fig. 11 ♀.)

Nearly allied to *A. acrita*, Hewits.

*Exp. al.* (♂) 2 in. 4-5 lin.; (♀) 1 in. 10 lin.

♂. *Deep brick-red, with black spots; fore wing with a broad black apical patch (as in A. caldarena) immediately preceded by a white space. Fore wing: four black spots as in A. acrita, viz., one in outer half of discoidal cell, and an oblique row of three from extremity of cell towards posterior angle; subbasal spot below median nervure wanting; ground-colour in subapical area, immediately before and below white space, paling into ochreous-yellow. Hind wing: cellular, subbasal, and discal spots as in A. acrita, but much smaller, those close to base and inner margin obsolescent, and one spot of discal series (between 2nd and 3rd median nervules near their origin) wanting entirely; hind-marginal black greatly narrowed,*

and reduced to two black lines (the inner one strongly festooned) enclosing seven spots of the ground-colour which are much more elongate than in *A. acrita*. *Cilia* white. **UNDERSIDE.**—Hind wing and apical area of fore wing yellowish creamy, but duller than in *A. acrita*; and the former with little or no trace of internervular red markings except near base between 1st median nervule and inner margin, while the latter bears a white space fainter than on upper-side. *Fore wing*: ground-colour redder than in *A. acrita*. *Hind wing*: spots more conspicuous than on upper-side, none being obsolescent, arranged as in *acrita*, but all smaller; hind-marginal border as in *A. acrita*, but much narrower.

♀. Like male; but ground-colour slightly duller, black spots proportionally larger and rounder (especially in hind wing); white subapical space in fore wing larger and clearer (extending downward to 2nd median nervule), and bases with a moderate fuscous suffusion. *Hind wing*: hind-marginal border rather wider than in male, its black bounding lines somewhat thicker. **UNDERSIDE.**—White space in fore wing better expressed; and internervular red markings in hind wing as in *A. acrita*, though much fainter.

Ehanda (September) and Okavango River (December). One male and one female specimen.

I referred to this *Acræa*, as a near ally of *A. acrita*, in 'South-African Butterflies' (vol. iii. p. 382, note); and notwithstanding the wide disparity of aspect effected by the broad apical black patch and adjacent white space in the fore wings, the Butterfly stands so near the species named that I am doubtful whether it can be kept separate when more examples are forthcoming. Besides the two specimens taken by Mr. Eriksson, I have received a fine male captured by Mr. F. C. Selous, in 1889, at a point a little S. of the junction of the Chobe and Zambesi rivers; this agrees well with Mr. Eriksson's Ehanda male, but has the black markings rather stronger. The solitary female from the Okavango is probably a dwarfed example, but in colouring it is much brighter than any female of *A. acrita* that I have seen.

The intimate relationship between this form and *A. acrita* is further shown by a male *Acræa* from Victoria Nyanza in the British Museum, which, although without any white space in the fore wings, presents in most of its markings an approach to the peculiarities of *A. ambigua*.

The antennæ in this *Acræa* and in *A. acrita* are remarkable for their length, which is half that of the fore wings, and for their elongate and gradual (instead of abrupt) elevation.

#### 11. *ACRÆA STENOBEA*, Wallengr.

*Acræa stenobea*, Wallengr. Wien. ent. Monatsch. 1860, p. 35. n. 9; Trimen, S.-Afr. Butt. i. p. 153. n. 44 [♂ ♀], pl. 3. f. 2 [♂] (1887).

Ehanda (August and September), Humbe (October), Otiembora (November and December), Okavango River (December), Omar-



amba-Oamatako (January). Six male and six female examples (four males and two females belonging to the var. *lygus*, Druce).

The male specimens are more warmly tinted above than the more southern examples, and this is especially the case in two (from Otiembora and Humbe respectively) of the var. *lygus*, where the hind wing and the inner-marginal border of the fore wings were (in July 1888) of an exquisite pink with a slight primrose bloom or gloss. The variety was also met with at Ehanda.

In two males of the variety (and also in a typical male from Bechuana-land) two additional black spots, corresponding with those usually possessed by the allied *A. natalica*, Boisid., occur near the hind margin between the second median nervule and the submedian nervule; the lower of these two spots is faintly represented in two females of the variety. In one of the typical males from Otiembora an aberration in marking occurs in both fore wings, on both upper and under sides, in the shape of a straight longitudinal blackish streak uniting lower part of terminal discocellular spot with the 4th spot of the subapical macular bar<sup>1</sup>.

In three females of the typical form the white abdominal spots of the posterior segments are so enlarged as to be coalescent, making the posterior half of the abdomen as white as in the male.

## 12. *ACRÆA ACARA*, Hewits.

♂. *Acræa acara*, Hewits. Exot. Butt. iii. pl. viii. ff. 19, 20 (1865).

Ehanda (August–September). One female specimen.

This solitary example is an aberration, presenting in the fore wings a wide suffusion of black, which includes the subapical black bar, the whole of the discoidal cell (except a small space between the basal and middle cellular black spots), and the costal border to the base; the basal area below the cell is also fuscous as far as the origin of the first median nervule, and the two inferior discal black spots are enlarged and somewhat diffused. The hind wings are more rufous than usual, and without dorsal white clouding; their basal markings are remarkably distinct, and the hind-marginal black border is well defined and completely encloses the series of ochreous spots. On the underside the same peculiarities prevail in the fore wings, where also the subbasal black spots below the median nervule are much enlarged; while the ground of the hind wings is almost wholly pinkish red, with very little white scaling on the disk.

## 13. *ACRÆA ENCEDON* (Linn.).

*Papilio encedon*, Linn. Mus. Lud. Ulr. Reg. p. 244. n. 63 (1764).

Humbe (October). Six male and one female examples.

These specimens are all of the typical dull-rufous form, none exhibiting any tendency to the pale colouring of the var. *lycia*, Fabr.

<sup>1</sup> *Vide infra*, p. 73, for an exactly corresponding instance in *A. rubira*.



14. *ACRÆA RAHIRA*, Boisd.

*Acræa rahira*, Boisd. Faune Ent. de Madag. etc. p. 33, pl. 5. ff. 4, 5 (1833); Mabille, in Grandid. Hist. Nat. etc. Madag., Lép. i. p. 110, and ii. pl. 11. ff. 9, 10 [♀] (1885-87).

Ehanda (September), Otiembora (November), and Okavango River (December). Four male and two female specimens.

The males are all much paler than the typical more southern examples, especially the two from Ehanda, which are pale ochre-yellow without any rufous tint except near the hind margins on the upperside; and all four possess on the upperside of the fore wings a narrow almost whitish space immediately beyond the subapical transverse series of black spots. In one of the Ehanda males the black spots generally are well developed; but in the other, and in two from the Okavango, they are much smaller than usual; in the first-named example the inner discocellular spot of the fore wings is sharply crescentic instead of roughly ovate. On the underside all the males show the black markings smaller and fainter, especially the transverse streak on the lower disk of the hind wings.

The two females are also considerably paler than the more southern ones, but their spots are not smaller. The yellower of the two has a black streak between the terminal discocellular spot and the third spot of the macular subapical bar<sup>1</sup>. I have noted (South-African Butterflies, i. p. 167) a Kaffrarian female in which the same character occurs, accompanied by other aberrant markings in the fore wings<sup>2</sup>.

The doubt expressed by the original describer of this species as to its actual occurrence in Madagascar has not yet been satisfactorily disposed of. Mabille (*loc. cit.*) observes that collections received from Madagascar "ne la contiennent presque jamais," but that it has been taken "dans ces derniers temps" near Tamatave and in the north-east of the island. He gives, however, no authority for either habitat, nor is any authenticated locality stated for the two assumed Madagascar examples in his own possession, or for those noted as having been seen in various collections. In South Africa *A. rahira* is a singularly abundant species (even among its gregarious congeners) wherever it occurs, and is also one of the slowest and most low-flying, and if it really inhabits Madagascar its great rarity there is rather difficult to account for. The female figured by Mabille is in tint and markings nearer to Mr. Eriksson's examples than to those inhabiting the Cape, Natal, and Transvaal.

<sup>1</sup> *Vide supra*, p. 72, for an exactly corresponding marking in a male *Acræa stenobea*.

<sup>2</sup> A far more aberrant female example was taken by Mr. F. C. Selous on the Shashani River in Matabele-land in 1882. All the black spots on both surfaces are in this specimen greatly enlarged and elongated, but especially those of the hind wings (which are normally as small), the basal ones more particularly being immensely larger and confluent.

15. *ACRÆA BUXTONI*, Butl.

*Acræa buxtoni*, Butl. Ann. & Mag. Nat. Hist. (4) xvi. p. 395 (1875).

*Acræa (Telchinia) perrupta*, Butl. op. cit. (5) xii. p. 102 (1883).

Omrora (August), Ehanda (September), Omaramba-Oamatako (January). Six male and one female specimens.

In the males there is much variation in the development and distinctness of the fulvous-ochreous spots in the dark hind-marginal border, ranging from even completeness throughout to obsolescence in the fore wings and partial obsolescence in the hind wings. The abbreviated subapical dark marking of the fore wings also varies considerably, and in two males and the only female is reduced to an irregularly subrescentic moderate-sized spot. Of these latter one male and the female evidently represent the *A. perrupta* of Butler, founded on specimens from Lake Nyanza.

## Subfamily NYMPHALINÆ.

## Genus PYRAMEIS, Doubl.

16. *PYRAMEIS CARDUI* (Linn.).

Ehanda (September) and Omaramba-Oamatako (January). Two examples.

## Genus JUNONIA, Doubl.

17. *JUNONIA CEBRENE*, Trim.

*Junonia cebrene*, Trim. Trans. Ent. Soc. Lond. 1870, p. 353.

Omrora (August), Ehanda (August-September), and Omaramba-Oamatako (January). Four examples; three males, one female.

18. *JUNONIA CLELIA* (Cram.).

*Papilio clelia*, Cram. Pap. Exot. i. t. xxi. ff. E, F (1775).

Omrora (August), Ehanda (August-September), Omaramba-Oamatako (January). Thirteen examples; eleven males, two females.

19. *JUNONIA BOÖPIS*, Trim.

*Junonia boöpis*, Trim. Trans. Ent. Soc. Lond. 1879, p. 331.

Omrora (August) and Ehanda (August-September). Four examples; one male, three females.

## Genus PRECIS, Doubl.

20. *PRECIS CUAMA* (Hewits.).

*Junonia cuama*, Hewits. Exot. Butt. iii. p. 25, pl. 13. ff. 4, 5 [♂] (1864).

Ehanda (August-September) and Okavango River (December). Five examples; three males, two females.

All these specimens, as well as another female from the Zambesi and two males from Mashuna-land in the South-African Museum, are of a much yellower and less rufous tint than the figure of the

type, and all want (on both surfaces) the conspicuous white centre of the second and third fuscous spots in the discal row of the fore wings<sup>1</sup>, and (on the upperside) the paler cloud in the middle of the hind wings. In the females the dark underside markings are (with the exception of the common median streak) obsolescent<sup>2</sup>.

In the Hewitson Collection specimens are recorded also from Lake Nyassa.

21. *PRECIS OCTAVIA* (Cram.).

*Papilio octavia*, Cram. Pap. Exot. ii. t. cxxxv. ff. B, C (1777).

Otiembora (November–December) and Okavango River (December). Two examples; male and female.

These specimens are of the southern form (which is larger and brighter in colour than the West-African type-form), and the male, though smaller than usual, is of unusual depth and richness of hue, especially on the underside.

22. *PRECIS SESAMUS*, Trim.

*Precis sesamus*, Trim. Trans. Ent. Soc. Lond. 1883, p. 347; S.-Afr. Butt. i. p. 231, pl. 4. f. 3 (1887).

Ehanda (August–September) and Omrora (November). Two male examples.

Both are much broken; they are smaller than usual, and the Omrora specimen exhibits alliance with *P. amestris* (Drury) in the discal red band, which is more sinuate and macular on the upperside and better indicated on the underside than in ordinary *P. sesamus*.

23. *PRECIS PELASGIS* (Godart).

*Vanessa pelasgis*, Godt. Enc. Méth. ix. Suppl. p. 820. n. 38,39 (1819).

Okavango River (December). One male example.

The only specimen is rather small, but richly coloured. On the upperside the common pale ochreous discal band is rather narrower, and the discocellular reddish and bluish striæ are better developed than usual. On the underside the band is not so white, more creamy; and the position of the upper part of the discocellular reddish stria of the upperside is indicated by a small but rather conspicuous violaceous-white mark.

24. *PRECIS ARTAXIA* (Hewits.).

*Junonia artaxia*, Hewits. Exot. Butt. iii. p. 26, pl. 13. f. 6 (1864).

Ehanda (August–September). One male example.

<sup>1</sup> In a female from Mashunã-land, however, these white centres are well-marked.

<sup>2</sup> *Precis petersii*, Dewitz (K. Leop.-Carol. Deutsch. Akad. Naturf. xli. p. 192, t. xxv. f. 14, 1879), founded on a single specimen collected by Pogge in Angola (lat. 10° S.), is almost certainly a slight variety of *P. cuama*, in which the dusky basal markings of the upperside are rather more developed, and the discal band of the underside is conspicuously paler.

This individual is smaller than the type, expanding only 2 in.  $5\frac{1}{2}$  lin. The ocellus on the superior half of the disk in the hind wings is relatively smaller, and there is a similar ocellus (only half the diameter of other) on the lower part of the disk between the first and second median nervules; also in the fore wings there is a less conspicuous but quite similar small discal ocellus between the first and second median nervules. These additional ocelli occur also, though less distinctly, in a larger example from Chapinga on the Zambesi, and the fore-wing ocellus faintly appears in another from Mashuna-land, both taken by Mr. F. C. Selous.

The characters noted approximate to those of the intimately allied *P. nachtigalii*, Dewitz (*l. c.* p. 194, t. xxv. f. 16), described from a single specimen taken by Pogge in Angola (lat.  $10^{\circ}$  S.); but the underside agrees with that of the typical form, possessing a very well-marked median streak in the hind wings but wanting the three ocelli of the Angolan form.

In the Hewitson Collection specimens of *P. artaxia* are also recorded from Lake Nyassa.

#### Genus CRENIS, Boisid.

25. CRENIS NATALENSIS, Boisid., var. (Plate IX. fig. 12 ♂.)

*Crenis natalensis*, Boisid. App. Voy. Deleg. dans l'Afr. Aust. p. 592. n. 80 (1847).

? *Crenis amazula*, Mab., Grandid. Hist. Phys. etc. Madag. p. 153, pl. xvii. ff. 9, 10 (1885-87).

Omrora (November) and Okavango River (December). Fourteen male examples.

These specimens are all distinguished by a very much paler ochreous-yellow upperside, and a very much paler lilacine-greyish underside of the hind wings and apex of the fore wings, than are found in the male *C. natalensis*; but still more remarkable is the fact that, although very faintly shown, the darker and paler marking of the apical area of the upperside of the fore wings is that proper to the female (not to the male) *C. natalensis*. Indeed, these unquestionable males from tropical S.W. Africa look very much like the female *C. amazula* figured by Mabile<sup>1</sup>. They differ, however, in having the basal half of the wings much yellower (almost free from any darker clouding), and the costal-apical dark markings of the fore wing much fainter and less developed; on the underside the latter distinction is also noticeable, but all the small black markings on this surface are more developed (especially the subbasal ones in the hind wings), and the yellow stripes bordering the ocelli of the hind wings are much deeper in colour and more strongly marked. These differences are all of course more marked in com-

<sup>1</sup> M. Mabile himself remarks (*l. c.*) that *C. amazula* may perhaps be only a form of *C. natalensis*. He adds that he had adopted the name (*amazula*) given in Boisduval's collection to a specimen from the "Côte d'Afrique," that the form is rare in Madagascar, and that he had seen only two examples in the Paris Museum.

parison with the much darker female of true *C. natalensis*, with the exception, however, of the underside markings just referred to, which are heavier in the latter than in *C. amazula*, Mabille.

It is not improbable that the discovery of the female may render necessary the separation from *C. natalensis* of the differently and more brightly tinted form brought to notice by Mr. Eriksson.

#### 26. *CRENIS BENGUELÆ*, Chapman.

♂. *Crenis benguelæ*, Chapm. Ent. M. Mag. viii. p. 175 (1872).

♂ ♀. *C. benguelæ*, Dewitz, Nov. Act. Leop.-Carol. Deutsch. Akad. Naturf. xli. p. 179, pl. xxv. ff. 1, 2 (1879).

Ehanda (August–September) and Otiembora (November–December). Six male examples.

The specimens of this striking *Crenis* are considerably larger than Dewitz's figure of a male from Chinchoxo, expanding 2 in.  $5\frac{1}{2}$  to 7 lin.; and the black markings of the upperside are better developed, especially the apical hind-marginal border of the fore wings, which emits rather long nervular rays, and the discal spots of the hind wings, which are four or five in number, instead of two only. In all the specimens (except one from Ehanda) there also appears on the upperside of the fore wings a submarginal series of very small indistinct internervular black spots, corresponding to the series of larger ones on the underside.

#### 27. *CRENIS ROSA*, Hewits.

♀. *Crenis rosa*, Hewits. Ent. M. Mag. xiv. p. 82 (1877); Trimen, S.-Afr. Butt. i. p. 255 (1887).

♂. *Crenis pechuelii*, Dewitz, l. c. p. 195, pl. xxvi. f. 1 (1879).

♂. *Crenis rosa*, Trim. l. c. iii. p. 403 (1889).

Otiembora (November–December). Eleven male examples.

I have noticed these specimens in the third volume of my 'South-African Butterflies' above quoted, and pointed out the characters distinguishing the male from the female type of the species. Unlike its near congener, *C. benguelæ*, this most beautiful *Crenis* is recorded from a very wide range in Africa, including Lake Nyanza and Delagoa Bay.

In the male the tint of the upperside varies, some specimens being bluer and others pinker in tinge, and the black markings vary a little in size and distinctness. On the underside there is considerable variation in the width of all the shining greenish-white markings of the hind wings.

#### 28. *CRENIS CONCORDIA* (Hopff.).

♀. *Harma concordia*, Hopff. Monatsb. k. Akad. Wissensch. Berl. 1855, p. 641; Peters, Reise Mossamb. Ius. p. 391, t. xxii. ff. 3, 4 (1862).

Omrora (1st–10th August). One female example.

It is remarkable to find this apparently very rare species, founded on a single female specimen from Querimba, occurring some 4° further S. on the opposite side of the continent.



Mr. Eriksson's specimen differs from that described and figured by Hopffer in several particulars, but is unfortunately worn and with the hind wings injured about the anal angle. On the upperside all the black spots are reduced in size; in the fore wings the fuscous hind-marginal border is almost wanting, and the subapical oblique costal ray is narrower and whiter; and in the hind wings there is no ochre-yellow colouring immediately beyond the median series of spots, but an additional small black spot occurs just beyond extremity of the discoidal cell. The underside is of a much deeper ochre-yellow, which in the hind wing to beyond middle is much more restricted, while in the fore wing the costal-apical area is streaked by internervular longitudinal bluish-white rays; and on the disk of the fore wings, between the third and a point a little below the first median nervules, there is a conspicuous fuscous cloud, almost obliterating the lowest two spots of the submarginal series, and emitting nervular rays towards base.

It is difficult to understand how Hopffer could have referred this butterfly to the genus *Harma*, as it is a true *Crenis* (not distantly allied to *C. rosa*), but singular in its possession of a common median row of black spots, and on the upperside of the fore wings also black discocellular striæ like those in the genus *Argynnis*. Hopffer himself notices the resemblance in size and form of the wings to the female *Argynnis laodice*, and the likeness extends also to the black markings of the upperside generally.

#### Genus HYPANIS, Boisd.

##### 29. HYPANIS ILITHYIA (Drury).

♂. *Papilio ilithyia*, Drury, Illustr. Nat. Hist. ii. pl. xvii. ff. 1, 2 (1773).

Var. *Hypanis acheloïa*, Wallengr. K. Svensk. Vet.-Akad. Handl., Lep. Rhop. Caffr. p. 29. n. 2 (1857).

Omrora (August), Ehanda (September), Okavango River (December), and Omaramba-Oamatako (January). Fifteen examples: four males and one female of the typical form; eight males and two females of the var. *acheloïa*.

Both the typical form and the variety were taken on the River Okavango and Omaramba-Oamatako, and the variety also at Omrora and Ehanda. Both varied from the medium to the light coloration of the underside, only one example (a male of the variety from Omrora) exhibiting the deep-ferruginous colouring often found in this species.

#### Genus NEPTIS, Fabr.

##### 30. NEPTIS AGATHA (Cram.).

*Papilio agatha*, Cram. Pap. Exot. iv. t. cccxxvii. ff. A, B (1780).

Omrora (August) and Ehanda (August-September). Eleven male examples.

Compared with examples of *N. agatha* from Natal, these specimens have the ground of a less deep black; the white bands are slightly

narrower, and their external black nervular indentations are very much shorter; and from two to four of the minute white spots near the costa of the fore wings, immediately preceding the white band, are found on the upper as well as on the underside. A dwarfed specimen from Ehanda expands only 1 in.  $8\frac{1}{2}$  lin.

Genus PSEUDACRÆA, Westw.

31. PSEUDACRÆA POGGEI (Dewitz).

♂. *Hypolymnas poggei*, Dewitz, Nov. Act. K. Leop.-Carol. Deutsch. Akad. Naturf. xli. p. 197, pl. xxvi. fig. 2 (1879).

Omrora (August). One male example.

This specimen agrees very nearly with Dewitz's figure of one of the two males stated to have been taken by Pogge in Central Angola, except that in the fore wings the subapical white bar is considerably narrower, and the greyish-white clouding of the apex on the underside is much more conspicuous. The thorax and abdomen are very imperfectly shown in the figure, the former being robust and (like the head) very conspicuously white-spotted, and the latter, though very slender, bearing on each side six conspicuous spots, of which the first two are white and the rest ochreous-yellow.

This most interesting butterfly is a very exact mimicker of *Danais chrysippus*; and it is especially noteworthy that in size (2 in. 10 lin. *exp. al.*) it corresponds with the smaller than usual *D. chrysippus* from the same locality. In three features it is even a closer imitator of its model than the female *Diadema misippus*, viz.: on the upperside of the fore wings the much narrower costal black and the absence of the apical white spot, and on the upperside of the hind wings the narrower, less diffuse, inwardly more sharply dentate hind-marginal black border. On the other hand, the greyish-white clouding on the underside of the apex of the fore wings and the conspicuous spotting of the abdomen are points which lessen *D. poggei's* likeness to *D. chrysippus* as compared to the colouring of the corresponding parts in *D. misippus*. These two characters and the subbasal black spots on the underside of the hind wings are retained generic features of *Pseudacræa*, quite peculiar and unmistakable, and should, in conjunction with that of the very long and gradually clavate antennæ, have prevented the error of the describer of this butterfly in referring it to the genus *Hypolymnas* (= *Diadema*, auct.).

*P. poggei* is very distinct from every other described species of *Pseudacræa*. In the want of subbasal black spots on the fore wings it agrees with the *P. lucretia* group; but the abdominal spotting is like that of *P. boisduvalii* and *P. trimenii*. The rufous-ochreous ground-colour of the wings exactly accords with that of *Danais chrysippus*, and the paler tint of the hind wings is most perfectly reproduced; while on the underside the creamy ochreous-yellow ground and the white neuration and black border of the hind wings (with also a general resemblance in the few white-edged black spots) are precisely simulative of the *Danais*.

## Genus HAMANUMIDA, Hübn.

## 32. HAMANUMIDA DÆDALUS (Fabr.).

*Papilio dædalus*, Fabr. Syst. Ent. p. 482. n. 174 (1775).

*Papilio meleagris*, Cram. Pap. Exot. i. t. lxvi. ff. A, B (1775).

Omrora (August). Six male and two female examples.

All the specimens are of the typical (*dædalus*) form, having the underside very dull argillaceous-ochreous more or less tinged with rufous, without white spots (except the two lowest in the discal series of the fore wings, which are tolerably well marked), and with the dark markings very faint.

## Genus CHARAXES, Ochs.

## 33. CHARAXES CANDIOPE (Godt.).

*Nymphalis candiope*, Godt. Enc. Méth. ix. p. 353. n. 10 (1819).

*Charaxes candiope*, Trim. S.-Afr. Butt. i. p. 327. n. 107, pl. 6. f. 4 (♂) (1887).

Omrora (August and September) and Ehanda (September). Four male examples.

## 34. CHARAXES SATURNUS, Butl.

*Charaxes saturnus*, Butl. Proc. Zool. Soc. 1865, p. 624, pl. 36. f. 1.

Omrora (August), Ehanda (September), and Okavango River (December). Eleven male examples.

## 35. CHARAXES ACHÆMENES, Feld.

*Charaxes achæmenes*, Feld. Reise Novara, Lep. iii. p. 446, pl. lix. ff. 6, 7 (♂) (1867).

Omrora (August) and Ehanda (September). Three examples, two males and a female.

In this species the apex of the fore wings is remarkably produced, especially in the female.

## 36. CHARAXES EPHYRA (Godt.).

*Nymphalis ephyra*, Godt. Encycl. Méth. ix. p. 355 (1819).

Ehanda (August and September). Two examples, a male and a female.

These examples are smaller than usual, especially the female, expanding only 2 in. 5 lin. The lower spots of the outer discal series of the fore wings in the female do not coalesce with those of the inner series, but are quite apart, indistinct, small, crescentic, and bluish; the basal half of both wings is strongly glossed with a greenish-bronzy metallic lustre<sup>1</sup>.

<sup>1</sup> There is strong reason for supposing that *C. ethocles*, Cram. (*nec* Drury), figured on pl. exix. D, E, in vol. ii. of Pap. Exot., is the female *C. ephyra*; notwithstanding the large size, rather rough execution, and crude colouring of the figures, they certainly seem to be intended to represent the female of this *Charaxes*.

37. *CHARAXES GUDERIANA* (Dewitz).

*Nymphalis guderiana*, Dewitz, Nov. Act. K. Leop.-Carol. Deutsch. Akad. Naturf. xli. p. 200, t. xxvi. f. 18 (1879).

Omrora (August) and Ehanda (September). Sixteen male examples.

Though so differently marked on the upperside, this species exhibits on the underside very close alliance to *C. ephyra* (Godt.), the chief distinctions consisting in the partial reproduction of the white markings of the upperside, and in the hind wings the better definition of the ferruginous discal lunulate streak, and the presence of some whitish scaling immediately beyond the median irregular bluish-black line. *Exp. al.* 2 in. 5–8 lin.

A single male, sent to me in 1883, was taken by Mr. F. C. Selous on the Gwailo River, South Mashuna-land.

38. *CHARAXES BOHEMANI*, Feld.

♂. *Charaxes bohemani*, Feld. Wien. ent. Monatschr. iii. p. 321, t. 6. f. 3 (1859); Butl. Lep. Exot. p. 28, pl. x. f. 3 (♀) (1869).

Omrora (August). Two male examples.

The specimens received of this noble *Charaxes* expand respectively 3 in.  $7\frac{1}{2}$  lin. and 4 in. The expanse of the Zambesi female figured by Butler (*loc. cit.*) is given as 3 in. 10 lin. Felder's type was from Lake Ngami (*Wahlberg*); Druce (Proc. Zool. Soc. 1875, p. 412) notes a fine series of the species from Angola (*Monteiro*); and Dewitz (*loc. cit.*) also mentions it as taken in Angola by Pogge.

## Family LYCÆNIDÆ.

## Genus LYCÆNA, Fabr.

39. *LYCÆNA OSIRIS*, Hopff.

♂. *Lycæna osiris*, Hopff. Monatsb. Preuss. Akad. Wissensch. 1855, p. 642. n. 21; Peters, Reise Mossamb., Ins. p. 409, t. xxvi. ff. 11, 12 (1862).

Otiembora (November–December). One female example.

40. *LYCÆNA ASOPUS*, Hopff.

♂ ♀. *Lycæna asopus*, Hopff. *loc. cit.* n. 22 (1855); and *op. cit.* p. 410, ff. 13–15 (1862)

Omrora (August–September). One male example.

41. *LYCÆNA PARSIMON* (Fabr.).

♂. *Papilio parsimon*, Fabr. Syst. Ent. p. 526. n. 349 (1775).  
*Papilio celæus*, Cram. Pap. Exot. iv. t. cccclxxix. ff. K, K (1781).  
Okavango River (December). One male specimen.

42. *LYCÆNA GLAUCA*, Trim.

♂ ♀. *Lycæna glauca*, Trim. S.-Afr. Butt. ii. p. 21. n. 123 (1887).

43. *LYCÆNA CISSUS* (Godt.).

♂ ♀. *Polyommatus cissus*, Godt. *Encycl. Méth.* ix. p. 683. n. 210 (1819).

Otiembora (November–December). One female example.

44. *LYCÆNA JOBATES*, Hopff.

♂. *Lycæna jobates*, Hopff. loc. cit. 1855, p. 642. n. 20; and op. cit. *Ins.* p. 408, t. xxvi. ff. 9, 10 (1862).

Ehanda (September). One female.

45. *LYCÆNA MAHALLOKOÆNA*, Wallengr.

♂ ♀. *Lycæna mahallokoæna*, Wallengr. *K. Sv. Vet.-Akad. Handl.* 1857, *Lep. Rhop. Caffr.* p. 41. n. 16.

Omrora (August). One male example.

46. *LYCÆNA LYSIMON* (Hüb.).

♂. *Papilio lysimon*, Hüb. *Samml. europ. Schmett.* ff. 534, 535 (? 1798).

Omrora (August). Two male examples.

47. *LYCÆNA LUCIDA*, Trim.

♂ ♀. *Lycæna lucida*, Trim. *Trans. Ent. Soc. Lond.* 1883, p. 348.

Omrora (August) and Ehanda (September). Two male examples.

48. *LYCÆNA GAIKA*, Trim.

♂. *Lycæna gaika*, Trim. *Trans. Ent. Soc. Lond.* 3rd ser. i. p. 403 (1862); and (♂ ♀) *Rhop. Afr. Austr.* ii. p. 256. n. 158, pl. 4. f. 7 [♂] (1865).

Omaramba-Oama ako (January). One female example.

49. *LYCÆNA BÆTICA* (Linn.).

Ehanda (September) and Okavango River (December). Five male examples.

50. *LYCÆNA SICHELA*, Wallengr.

♂. *Lycæna sichela*, Wallengr. loc. cit. 1857, p. 37. n. 4.

Omrora (August) and Ehanda (August–September). Twelve male examples.

These are the first specimens of this curious *Lycæna* that I have seen from any locality within the tropical limit. Like the more southern examples, they vary much in size.

51. *LYCÆNA TELICANUS* (Lang).

*Papilio telecanus*, Lang, "Verz. sein. Schmett. ii. p. 47. n. 387–389 (1789)."

Omrora (August and November) and Ehanda (August–September). Twenty-two male examples.



52. *LYCÆNA JESOUS* (Guérin).

♂. *Polyommatus jesous*, Guér., Lefebv. Voy. Abyss. vi. p. 383, pl. 11. ff. 3, 4 (1847).

Ehanda (September), Humbe (October), and Omaramba-Oamatako (January). Seven specimens; six males, one female.

53. *LYCÆNA MORIQUA*, Wallengr.

♂. *Lycæna moriqua*, Wallengr. loc. cit. p. 39 (1857); ♂ ♀, Trim. S.-Afr. Butt. ii. p. 75. n. 157, pl. 8. ff. 5, 5 a (1887).

Ehanda (August-September). Two male examples.

54. *LYCÆNA CALICE*, Hopff.

*Lycæna calice*, Hopff. loc. cit. 1855, p. 642. n. 18; and op. cit. p. 405, t. xxvi. ff. 4, 5 (1862).

Omrora (August) and Ehanda (August-September). Three examples; a male and two females.

These specimens of *L. calice* are rather larger than the type figured by Hopffer, and have on the upperside the basal and marginal black clouding in both fore and hind wings less strongly developed; while on the underside all the black markings are more attenuated.

55. *LYCÆNA MELÆNA*, Trim.

*Lycæna melæna*, Trim. S.-Afr. Butt. ii. p. 82. n. 161 (1887).

Omrora (August), Ehanda (August-September), and Okavango River (December). Six examples; four males, two females.

All these specimens are rather smaller than usual, their upperside is typical in character, but the underside markings (as in the closely allied *L. calice*) are more attenuated.

56. *LYCÆNA SYBARIS*, Hopff.

♂ ♀. *Lycæna sybaris*, Hopff. Monatsb. Preuss. Akad. Wissensch. 1855, p. 642; and op. cit. p. 408, t. xxvi. ff. 6-8 (1862).

Omrora (August), Ehanda (September), Otiembora (November-December). Six examples; five males, one female.

Genus *LYCÆNESTHES*, Moore.57. *LYCÆNESTHES AMARAH* (Guérin)

♀. *Polyommatus amarah*, Guér., Lefebv. Voy. Abyss. vi. p. 384, pl. 11. ff. 5, 6 (1847).

Omaramba-Oamatako (January). One male example.

58. *LYCÆNESTHES OTACILIA*, Trim.

♂. *Lycænesthes otacilia*, Trim. Trans. Ent. Soc. Lond. 1868, p. 90; and S.-Afr. Butt. ii. p. 102. n. 171, pl. 7. f. 8 (1887).

Ehanda (September). One female example.

## Genus DEUDORIX, Hewits.

## 59. DEUDORIX ANTALUS (Hopff.).

*Dipsas antalus*, Hopff. loc. cit. 1855, p. 641. n. 15; and op. cit. p. 400, t. xxv. ff. 7-9 [♀] (1862).

Omrora (August). One female example.

## 60. DEUDORIX LICINIA (Mabille).

♂. *Thecla licinia*, Mab. Bull. Soc. Zool. France, 1878, p. 83; Grandid. Hist. Phys. etc. Madag. pl. 30 A. ff. 5, 5a (1885).

♂ ♀. *Deudorix dinochares*, H. G. Smith, Ann. & Mag. Nat. Hist. 5th ser. xix. p. 64. n. 7 (1887).

Omrora (August), Ehanda (August-September), and Okavango River (December). Four male examples.

The Okavango specimen and one of the two Ehanda examples are normal and full-sized, but the other two are considerably smaller, and the Omrora individual has the orange-red ground-colour yellower in tint than usual, and the fuscous border of the fore wings narrower.

## 61. DEUDORIX OBSCURATA, n. sp. (Plate IX. fig. 13 ♂.)

*Exp. al.* 1 in. 2 lin.

♂. *Glossy lilacine-blue*, with *costa of both wings and apical half of fore wing pale dull brownish grey; in fore wing, between costa and 1st median nervule, a very large upper-median black patch.* *Fore wing:* inner margin prominently convex before middle; black patch irrorated with blue in discoidal cell and between 1st and 2nd median nervules; costal border of brownish grey very narrow as far as outer edge of black patch; very broad apical hind-marginal brownish grey, abruptly terminating on 1st median nervule. *Hind wing:* costal subbasal sexual badge large, shining, whitish, fuscous-edged, roughly ovate; costal border of brownish grey moderately wide as far as apex, not extending below 2nd subcostal nervule; inner-marginal brownish-grey border suffused with whitish, not extending above submedian nervure; a fine black hind-marginal bounding line, more apparent inferiorly; linear black tail at extremity of 1st median nervule white-tipped, rather long; lobe at anal angle not large, bearing a black spot with some metallic-blue scales. *Cilia* brownish grey, mixed slightly with white near posterior angle of fore wing and in hind wing, in which latter white predominates at and near anal angle. **UNDERSIDE.**—Pale yellowish grey; ordinary terminal discocellular, discal, and submarginal markings not darker than the ground-colour, but defined by very slender and inconspicuous whitish bounding lines; no subbasal spots in either wing. *Fore wing:* just below median nervure and origin of its 1st nervule a conspicuous longitudinal black mark (mostly hidden by convex prominence of costa of hind wing), being the upper part of a large shining whitish black-edged subpyriform inner-marginal sexual badge, corresponding with that on costa of hind wing on the upperside. *Hind wing:* black spot on anal-angular lobe and a

similar very conspicuous hind-marginal black spot between 1st and 2nd median nervules bounded internally by a wide pale-yellow lunule; costa rather prominently convex at a little distance from the base.

Omrora (November). One male example.

This species belongs to the group separated generically by Moore (Lep. Ceylon, i. p. 104, 1881) as *Virachola*, and in its blue upper-side colouring resembles the much larger *D. perse*, Hewits., which is given as the typical species. In the strong convexity or lobation of the wing-margins where they overlap near the bases, *D. obscurata* resembles *Hypolycæna cæculus* (Hopff.), while in the very conspicuous black patch or cloud on the upperside of the fore wings it bears some likeness to *H. erylus* (Godt.).

#### Genus HYPOLYCÆNA, Feld.

##### 62. HYPOLYCÆNA CÆCULUS (Hopff.). (Plate IX. fig. 14 ♂.)

*Iolus cæculus*, Hopff. Monatsb. k. Akad. Wissensch. Berl. 1855, p. 642. n. 17; and Peters, Reise Mossamb., Ins. p. 402, t. xxv. ff. 12-14 (♂ ♀).

Omrora (August). Eight examples; six males and two females.

The examples under notice are rather larger (*exp. al.* ♂ 1 in. 3-5½ lin., ♀ 1 in. 4½-5½ lin.) than the types from Querimba and Tette described and figured by Hopffer, and also than the specimens I have received from Delagoa Bay. The males further differ on the upperside in presenting a decidedly more violaceous tint than the East-African males, and a narrower fuscous apical hind-marginal border in the fore wings; while both sexes on the underside have the thin transverse streaks of a much more decided red.

Besides the above-mentioned examples the collection contains six males (four from Humbe taken in October, and two from Omrora taken in November) which appear to constitute a very strongly marked *seasonal form* of *H. cæculus*, presenting the following distinctions from the earlier brood:—*Size larger* (*exp. al.* 1 in. 5-6 lin.); upperside of a *deeper violaceous not inclining to blue*, with the fuscous border of fore wings broader; underside with the *red transverse streaks greatly* (*from more than twice to three times*) broader. The underside markings correspond so exactly in position and form with those of ordinary *cæculus* that, notwithstanding their extreme development, it is impossible to regard them as indicating a distinct species.

#### Genus IOLAUS, Hübn.

##### 63. IOLAUS BOWKERI, Trim.

♀. *Iolus bowkeri*, Trim. Trans. Ent. Soc. Lond. 3rd ser. ii. p. 176 (1864); Rhop. Afr. Aust. ii. p. 225. n. 130, pl. 4. f. 4 (1866); and (♂ ♀) S.-Afr. Butt. ii. p. 132. n. 186 (1887).

Ehanda (September), Omrora (November), Okavango River (December), and Omaramba-Oamatoko (January). Five examples; three males, two females.

A female from the Okavango River is the largest I have yet measured, expanding 1 in. 7 lin. The species is widely distributed over extra-tropical South Africa, and is also recorded from Kinsembo, a little to the N. of Ambriz in Angola.

64. *IOLAUS PALLENE* (Wallengr.).

*Myrina pallene*, Wallengr. K. Sv. Vet.-Akad. Handl. 1857, Lep. Rhop. Caffr. p. 36.

Okavango River (December). One male example.

This species, so isolated in colour and marking, seems to be remarkably rare, although known to occur at widely-remote spots, such as Lakes Nyanza and Nyassa in tropical, and Swaziland and Natal in extra-tropical South Africa. From the latter region of the continent I have seen but one individual, but have been authentically informed of the occurrence of five others.

GENUS *APHNÆUS*, Hübn.

65. *APHNÆUS ERIKSSONI*, n. sp. (Plate IX. fig. 15 ♀.)

♀. *Exp. al.* 1 in. 7 lin.

*Dull brownish red, with a common terminal hind-marginal fuscous line; cilia short, whitish. Fore wing:* just at extremity of discoidal cell a good-sized rather indistinct quadrate ochre-yellow spot; a little beyond it a transverse series of five smaller spots of the same colour, lying between subcostal nervure and first median nervule, of which the third (between lower radial and third median nervules) is nearer hind margin than the rest, and the fifth (lowest) is smallest and most indistinct. *Hind wing:* traces of three very indistinct ochre-yellow spots, one at extremity of discoidal cell, and two (very small) beyond it; anal-angular portion much elongated and produced, with a very prominent broad terminal lobe, fuscous, with bronzy-greenish scales; at extremity of submedian nervure a moderately-long rather stout tail, of the ground-colour. [Tail on 1st median nervule wanting, but probably present in uninjured examples.]

*UNDERSIDE.*—*Brownish ochre-yellow, with good-sized, rounded, thinly ferruginous-brown-edged ochre-yellow spots;* in both wings, a terminal discocellular spot, and an irregular discal series of contiguous spots, also a series of separate spots along hind margin. *Fore wing:* in discoidal cell two spots, one subbasal, the other median; inner-marginal border dull pale yellowish; six spots in discal series, of which the third (between lower radial and 3rd median nervules) is beyond, and the sixth (imperfect, and below 1st median nervule) before, the rest; seven spots in hind-marginal series. *Hind wing:* a subbasal series of four circular spots, of which the 2nd is in discoidal cell, and the 3rd (between 1st median nervule and submedian nervure) is considerably beyond the rest; nine spots in discal series, of which the 2nd, 3rd, 4th, and 8th are more or less beyond the rest; in hind-marginal series six separate spots, succeeded (below 1st median nervule) by three confluent into one; some metallic-greenish scales on extremity of anal-angular lobe, preceded (below submedian nervure) by a small dull crimson spot.

Head above dull brownish red; eyes banded anteriorly by a metallic silvery-white stripe, posteriorly by a dull white one; palpi with terminal joint and upperside of middle joint brownish red, but beneath dull creamy; antennæ ferruginous, tipped with ochre-yellow, beneath tinged with whitish about middle. Abdomen dull brownish red laterally and terminally, beneath pale dull creamy in basal half.

In its robust body and produced wings, as well as in its five-branched subcostal nervure of the fore wings, this butterfly exhibits unmistakable signs of belonging to the section of *Aphnæus* which includes the brilliant *A. hutchinsonii*, Trim., and (I believe) *A. orcas* (Drury), and which Mr. de Nicéville has recently (Butt. India &c. iii. p. 347, 1890) proposed to separate generically under the name of *Aphnæomorpha*. The almost ferruginous tint of the upperside, and the entire absence of silvery or other metallic lustre in the spots of the underside, impart a most singular aspect to this species, quite unlike that of any previously known member of the genus<sup>1</sup>. The position and arrangement, however, of the dark-edged spots on the underside are similar to those found in *A. orcas*. Unfortunately, the only example contained in Mr. Eriksson's collection is somewhat rubbed and worn.

66. APHNÆUS NATALENSIS (Westw.).

♀ (?). *Amblypodia natalensis*, Westw. Gen. D. Lep. ii. p. 479, pl. lxxv. f. 4 (1852).

♂ ♀. *Aphnæus natalensis*, Hewits. Ill. D. Lep. p. 62, pl. 25. ff. 1, 2 (1865).

Omaramba-Oamatako (January). Two examples; male and female.

67. APHNÆUS MODESTUS, n. sp. (Plate IX. fig. 16 ♂.)

♂. *Exp. al.* 1 in. 2 lin.

Like *A. natalensis* (Westw.) ♂, but the violaceous gloss of a deeper tint, inclining to purple. *Fore wing*: short ochre-yellow transverse band crossing discoidal cell narrower, median band straighter and inferiorly wider, outer band narrower and united to median one between 1st and 2nd median nervules. *Hind wing*: no hind-marginal pale streak preceding black edging-line; anal-angular ochre-yellow spot smaller, and with only very faint indication of two minute blackish spots on its outer edge. **UNDERSIDE**.—*Pale whitish yellow; the transverse fascia almost of the same tint as the ground-colour, thinly edged with fuscous in fore wing and with pale grey in hind wing, and rather sparsely marked with silvery along their middle. Fore wing*: fasciæ and other markings arranged as in *natalensis*, but the former broader, less regular, more sinuate;

<sup>1</sup> Mr. Hewitson in 1875 described (Ent. M. Mag. xii. p. 39), from a single Bornean example, a large *Aphnæus*, under the name of *A. vixinga*, which has a "dark red-brown upperside," but the underside is noted as having "many silver spots" in both wings.



blackish subbasal infracellular marking larger, more as in *A. masilikazi*, Wallengr. ; two submarginal streaks pale grey, interrupted on nervules, the inner one commencing with a small costal spot (as in *masilikazi*) and becoming blackish below 2nd median nervule. *Hind wing* : subbasal spots extremely indistinct ; the two fasciæ very much more irregular than in either *A. natalensis* or *A. masilikazi*, and in outline and relative position much as in *A. ella*, Hewits., the extremity of the short outer fascia just meeting a projection of the long median one on 3rd median nervule ; two submarginal streaks linear, pale grey, broken into lunules, the inner one spangled with silver along its lower half ; a very small anal-angular black spot, and near it (just above submedian nervure) a minute silvery-spangled spot.

Although this form is represented by a rather worn individual only, the characters of the underside are so markedly different from those of any *Aphnæus* known to me that I have no hesitation in noting it as a distinct species. The anal-angular lobe of the hind wings appears to be much less prominent than in the allied species, but this may be partly due to the wing being more worn in that part than elsewhere.

Omrora (November). One male example.

68. *APHNÆUS VICTORIÆ*, Butl.

*Aphnæus victoriæ*, Butl. Ent. M. Mag. xx. p. 251 (1884).

Omrora (November). One male example.

I have already noticed this specimen in my 'South-African Butterflies' (iii. p. 414, note), pointing out the alliance of the species to *A. masilikazi*, and the singularity of the underside markings which distinguish it. Mr. Butler gives Victoria Nyanza as the *habitat* of the type.

69. *APHNÆUS PHANES*, Trim.

♂ ♀. *Aphnæus phanes*, Trim. Trans. Ent. Soc. Lond. 1873, p. 111, pl. i. figs. 4, 5.

Ehanda (September), Okavango River (December), and Omaramba-Oamatako (January). Six examples ; two males and four females.

70. *APHNÆUS HOMEYERI*, Dewitz.

♂ ♀. *Aphnæus homeyeri*, Dew. Deutsch. ent. Zeitschr. xxx. p. 429, pl. ii. figs. 5, 5 a, 5 b, 5 c (1887) <sup>1</sup>.

Omrora (August and November), Ehanda (September). Ten examples ; seven males and three females.

As Dewitz remarks (*loc. cit.*), there is close agreement on the upperside between this species and *A. natalensis* (Westw.). As regards the underside, however, not only is the ground-colour of a decidedly duller yellow (in some specimens inclining to ochreous or

<sup>1</sup> Dewitz notes that this species was brought from Angola by both Homeyer and Pogge, and that the latter took one specimen at Mukenge on 9th December. (The latter locality is situated in about 6° S. lat. and 22° 30' W. long., close to the Lulua River.)

arenaceous), but, while the fore-wing markings differ but slightly from those of *natalensis*, in the hind wing both the transverse bands are broken and irregular instead of straight and even, and the outer one, instead of being wholly separate, usually touches and often unites with the inner one, being strongly bent inward between the subcostal nervules. The basi-inner marginal orange of the underside in *natalensis* is wanting in *homeyeri*, but the sub-basal spots in the hind wing are considerably or even greatly enlarged, the two outermost in the latter case often touching the inner transverse band (as in Dewitz's fig. 5 a).

It is a remarkable fact that, of the ten examples collected by Mr. Eriksson, the six taken in August and September are without exception of very dull colouring beneath, contrasting strikingly with the bright tints of the four captured in November. In the latter the ground is a clear, or almost clear, pale yellow, and the markings orange-red or ferruginous-red and sharply defined; but in the former both ground and markings are much altered and approximate to each other in hue, especially in the hind wings, where an almost uniform isabelline-sandy tint prevails. This dulness and almost obliteration of the markings, except for their silvery streaks and spots, are most pronounced in the female, and, like several other instances recorded in this paper, appear to indicate a dry-season (winter) generation in which the underside colouring harmonizes with the exposed soil and withered herbage<sup>1</sup>.

#### Genus CHRYSORYCHIA, Wallengr.

##### 71. CHRYSORYCHIA HARPAZ (Fabr.).

♀. *Papilio harpax*, Fabr. Syst. Ent., App. p. 829. n. 327-328 (1775).

♂. *Chrysorychia tjoane*, Wallengr. K. Sv. Vet.-Akad. Handl. 1857, Lep. Rhop. Caffr. p. 44.

Ehanda (August and September), Okavango River (December), and Omaramba-Oamatako (January). Five examples; three males and two females.

In all these specimens the underside colouring is pale and dull, and its metallic spots small and faint, while the male from Omaramba-Oamatako presents the peculiarity of a rather conspicuous dark-grey submarginal fascia in the hind wings. On the upper side they have the ground-colour of a paler red, and the males have a narrower dark apical border, than more southern examples; and in all respects they resemble the Zambesian and Matabele-land specimens mentioned in my 'South-African Butterflies' (ii. p. 164, note). One of the two Ehanda females agrees very closely with Hopffer's figure (Peters, Reise Mossamb., Ins. pl. xxvi. f. 2) of a Querimba individual of the same sex.

<sup>1</sup> Mr. de Nicéville (Butt. India &c. iii. pp. 354, 360, 364, 1890) gives evidence tending to show that occasional dimorphism occurs in several Asiatic species of *Aphnaeus*.

72. *CHRYSORYCHIA AMANGA* (Westw.).

♂ ♀. *Zeritis amanga*, Westw., Oates' 'Matabele-land,' &c. p. 351. n. 62 (1881).

Omrora (August and November) and Humbe (October). Ten examples; six males and four females.

These males on the upperside differ from the Transvaal one figured in 'South-African Butterflies' (ii. pl. 9. f. 1) in the much larger red field in the fore wings, extending more or less over the discoidal cell and the upper discal area beyond the cell. Both sexes have the underside of a very uniform reddish-ochreous—a character which I have previously noticed in some of the females only.

GENUS *ZERITIS*, Boisd.73. *ZERITIS LEROMA* (Wallengr.).

♀. *Arhopala? leroma*, Wallengr. loc. cit. p. 42 (1857).

♂ ♀. *Zeritis leroma*, Trim. Trans. Ent. Soc. Lond. 1870, p. 375, pl. vi. f. 10 [♂].

Otiembora (November to December), Okavango River (December), Omaramba-Oamatako (January).

74. *ZERITIS ARANDA* (Wallengr.).

♂. *Cygaritis aranda*, Wallengr. loc. cit. 1857, p. 43.

Omrora (August). Three male examples.

On the underside the ground-colour in these specimens is duller and paler than usual, but the sub-metallic spots of the hind wing are whiter and more shining.

75. *ZERITIS MOLOMO*, Trin.

♀. *Zeritis molomo*, Trim. Trans. Ent. Soc. Lond. 1870, p. 373, pl. vi. f. 9; and var. A (♂ ♀), S.-Afr. Butt. ii. p. 206 (1887).

Humbe (October), Okavango River (December), and Omaramba-Oamatako (January). Nine examples; four males and five females.

These specimens approximate more nearly to the var. A above referred to, but are decidedly smaller than usual. The males have the fore wings longer apically, and the anal angular projection and short tail of the hind wings longer; the orange ground-colour is brighter, the dark costal patch is larger in both fore and hind wings, and the dark border of the fore wings is wider at the posterior angle. The females are nearer to the typical form than usual in having the hind-marginal border of the fore wings but slightly pierced by nervular projections of the ground-colour.

76. *ZERITIS DAMARENSIS*, n. sp. (Plate IX. fig. 17 ♂.)

♂. *Exp. al.* 1 in. 4–5½ lin.

Closely allied to *Z. molomo*, Trim., but much larger. Orange-yellow paler and duller and in both wings restricted to discal area, the basal area being widely obscured with ochreous-fuscous.

UNDERSIDE.—Costa of fore wing above costal nervure, and base and

*upper median portion of hind wing, conspicuously clouded with whitish. Fore wing*: silvery-white centres to discocellular and discal spots large and bright; lowest spot in discal series large and curved; a small black spot (as in *Z. picrus*, Cram.) immediately below sub-basal discocellular spot. *Hind wing*: sub-metallic spots whiter but not so bright as in *Z. molomo*, *the outer discal series more remote from the inner one and more regular*; last two spots of both outer discal and hind-marginal series fuscous, outwardly bounded by whitish.

The variability and intimate alliance of the various forms of this (the *Thyra*) section of *Zeritis* render a satisfactory discrimination of them exceedingly difficult, but I think that the difference of size and the peculiarities of marking above noted warrant the separation of *Z. damarensis* as a distinct species. It should be observed that the specimens described were taken at the same place and during the same month as *Z. molomo*.

Omaramba-Oamatako (January). Three male examples.

#### Genus ERIKSSONIA, n. g.

IMAGO.—*Head small*, clothed with short down; eyes smooth; antennæ rather short, thick, very gradually incrassate from about middle to tip (which is obtuse); palpi long, horizontally porrect, not convergent but apart throughout their length, laterally compressed, clothed with short scales above and with long densely-packed hair-like scales beneath, terminal joint long, acuminate, but not very slender.

*Thorax very short, slender, very sparsely clothed* with scales and hairs. *Fore wing elongate*, produced apically; costa but slightly arched at base, and thence almost straight to apex; hind margin slightly convex between upper radial and 3rd median nervules; subcostal neurulation like that of *Zeritis*, *except that the 4th nervule is shorter and terminates on costa just before apex*; discocellular nervules almost vertically transverse, slightly curved, the lower about twice as long as the upper one; *upper radial nervule united to subcostal nervure at some distance beyond extremity of cell*; discoidal cell short, less than half the length of wing. *Hind wings* with costa very prominently convex at base, but thence only moderately curved; hind margin slightly sinuate (in female and in one of the male specimens with a very slight subangular prominence at extremity of 3rd median nervule); at anal angle a short acute projection; costal nervure terminating at apex; subcostal nervure branching a little before extremity of cell; discoidal cell very short; radial nervule starting from junction of discocellular nervules nearer to 2nd subcostal than to 3rd median nervules. *Legs* rather long and stout, thickly clothed with scales; tibiæ very sparsely, tarsi closely spinulose beneath; *middle and hind tibiæ with very short terminal spurs*; fore tibiæ in male armed with a long straight terminal spur outwardly and superiorly; middle and hind tarsi with the first joint longer than tibia (and in male as thick), and with the terminal claws large and strong; fore tarsi longer than tibia, in male more slender



than tibia and ending in a long slightly-curved acute claw, in female as thick as tibia and like the other tarsi except that the first joint is shorter.

Abdomen of moderate length, slender, laterally compressed, arched, acuminate.

The structural characters italicized in the above diagnosis are those that mainly distinguish this new genus from *Zeritis*; but the whole aspect, notwithstanding similarity of colouring and to a less extent of marking, is very different from that of the latter genus, and resembles that of the small *Acræa* represented by *A. serena*, Fabr. Though much more normal as a Lycaenid than such aberrant African genera as *Deloneura* and *Lachnocnema*, *Erikssonina* exhibits considerable divergence from the typical groups of the family, and is probably best placed between *Zeritis* and *Mimacræa*, but nearer to the former than to the latter.

77. *ERIKSSONIA ACRÆINA*, n. sp. (Plate IX. figs. 18 ♂, 19 ♀, 20 ♂.)

*Exp. al.* (♂) 1 in.  $1\frac{1}{2}$ – $4\frac{1}{2}$  lin.; (♀) 1 in. 6 lin.

♂. *Varying from pale to deep fulvous-ochreous, with narrow fuscous marginal borders.* *Fore wing:* a moderately broad costal border, commencing before first third of wing, becoming gradually wider to apex, but very deeply excavated by the ground-colour a little before apex; a terminal narrow elongate transverse discocellular fuscous mark joined to costal border (in one of the larger examples almost obsolete); some of the underside markings, consisting of two discocellular dark spots and a discal and a submarginal series of dark spots, indistinctly traceable; hind-marginal border, below apical costal expansion, evenly narrow to posterior angle, its inner edge emitting short nervular dentations; cilia pale ochre-yellow, with two or three rather indistinct dark nervular interruptions along upper half of wing. *Hind wing:* hind-marginal border without internal dentations, narrower than in fore wing, except at apex, where there is a considerable fuscous expansion much like that in fore wing; from the lower inner corner of this expansion there runs (in the two paler smaller examples) a somewhat sinuated, slightly tapering, outwardly denticulated, submarginal fuscous streak, the extremity of which is curved to join that of hind-marginal border at anal angle; in one of the two large examples only the very commencement of this streak is distinct, in the other the whole streak is wanting and the apical dark marking is much reduced. Cilia long, creamy, with regular narrow nervular fuscous interruptions. *UNDERSIDE.*—*Paler and duller than upperside, varying (in accordance with tint of upperside) from pale dull ochre-yellow in the two smaller examples to pale fulvous-ochreous in the two larger ones; in both wings—three discocellular black spots (one terminal), an irregular discal row of smaller black spots, a submarginal black streak (submacular in fore wing) bearing along its inner side a submacular glittering-silvery streak, and a hind-marginal well-marked black edging line, immediately preceded by a creamy one (the latter*



*less distinct in the smaller, paler specimens*). *Fore wing*: costa edged with creamy in basal fourth, and beyond that by a very slender black line; a small black mark on costal nervure at base; 1st discocellular spot close to base, 2nd about middle of cell; a small extra-cellular spot occurs immediately below the middle cellular spot in both wings of one of the larger examples, and (minutely) in the left wing of the two smaller examples; 6 spots in oblique discal row, of which the 6th (wanting in one of the larger examples) is considerably before and smaller than the rest and situated just below 1st median nervule, while the 4th and 5th are slightly before the upper three. *Hind wing*: ground-colour paler than that of fore wing, *but in the two large examples much clouded with pinkish red*, most developed beyond discal series of spots (in which part there exists a faint tinge of the colour in the smaller examples): 1st discocellular spot at base, 2nd nearer to it than to terminal spot (which is slender and sublunular); three other sub-basal black spots, one immediately above, the others immediately below discoidal cell; discal series consisting of 8 small spots, of which the 1st is considerably the largest, close to costa, and (as well as the 8th, on inner margin) situated far before the rest, and the 6th (between 1st median nervule and submedian nervure) is sublunular, elongate, and a little before the 5th and 7th; neuration between sub-marginal and hind-marginal black streaks more or less defined with black. Cilia as on upper-side.

Head fuscous above, creamy, or creamy and fulvous-ochreous, frontally; a white line round the eyes; palpi fuscous above, ochreous-creamy beneath; antennæ fuscous above, creamy-whitish beneath, the tip and the underside of the elongate incassation chestnut-red. Thorax black above, with fulvous-ochreous collar and creamy-ochreous pterygodes—creamy-ochreous mixed with white beneath. Legs creamy-ochreous throughout. Abdomen above and laterally paler or deeper fulvous-ochreous, beneath paler; an inferior lateral black line, bordered on each side by a series of white marks.

♀. Like ♂. *Fore wing*: upper three spots of discal series of underside well represented and completely united, so as to form a conspicuous, transverse, fuscous streak, about midway between terminal discocellular spot and hind-marginal border; base with a moderate fuscous suffusion; inner edge of hind-marginal border more deeply indenting ground-colour on nervules. *Hind wing*: a moderate basal fuscous suffusion; spots of underside better indicated than in male; apical fuscous and submarginal streak well-developed. **UNDERSIDE.**—As in larger males; but silvery-marked submarginal streak broken in fore wing into six quite separate spots, and pinkish-red clouding of *hind wing*, though generally diffused, not so bright, especially just before submarginal streak.

2 ♂ (smaller and paler), Omrora, November.

2 ♂ (larger and brighter), Okavango River, December.

1 ♀, Otiembora, between 20th November and 2nd December.

The amount of variation in so small a number of specimens is very noteworthy, and indicates the unstable condition of a species to all

appearances under process of modification in mimicry of the genus *Acræa*. While the fulvous colouring and dark borders unquestionably give this butterfly a strong resemblance to *A. buxtoni*, Butler, as far as the upper surface goes, the spotting and colouring of the under surface present (especially in the hind wings) an unmistakable likeness to those of *A. axina* and *A. atergatis*, Westwood, the mimicry being further strengthened by all the details of colouring in the head, body, and legs. I regard this as a most instructive case of mimicry in progress, because, on both surfaces of the wings, the ordinary coloration and markings of the section of *Zeritis* to which *Z. molomo*, mihi, and *Z. aranda*, Wallengr., belong would appear to have afforded the obvious material on which natural selection has worked to bring about the very decided, though still incomplete, likeness to *Acræa*, the lengthening of the fore wings materially assisting in producing the effect required.

#### Genus ALÆNA, Boisd.

##### 78. ALÆNA AMAZOUOLA, Boisd.

*Acræa (Alæna) amazoula*, Boisd. App. Voy. de Deleg. dans l'Afr. Aust. p. 591. n. 60 (1847).

Okavango River (December). One female example.

This is the most northern and western station known to me for this species. Other tropical localities for it are Bulawayo in Matabele-land, and Umfula River in Mashuna-land, whence examples have been sent to me by Mr. F. C. Selous.

#### Family PAPILIONIDÆ.

##### Subfamily PIERINÆ.

#### Genus TERIAS, Swains.

##### 79. TERIAS BRIGITTA (Cram.).

♀. *Papillio brigitta*, Cram. Pap. Exot. iv. t. cccxxxi. ff. B, C (1780).

Omrorra (August), Ehanda (August–September), Humbe (October), and Okavango River (December). Twenty-two examples; ten males and twelve females.

One of the three males from Ehanda has the underside without any tinge of rufous, and resembling that of the ordinary male *zoë*, Hopff., in tint, but the markings are almost obsolete.

##### 80. TERIAS ZOË, Hopff.

♀. *Terias zoë*, Hopff., Monatsb. Akad. Wissensch. Berl. 1855, p. 640; and Peters, Reise Mossamb., Ins. p. 369, t. xxiii. ff. 10, 11 (1862).

Omrorra (August and November), Ehanda (September), Humbe (October), and Omaramba-Oamatako (January). Seven male examples.

81. *TERIAS FLORICOLA*, Boisd.

*Xanthidia floricola*, Boisd. Faun. Ent. Madag. etc. p. 21. n. 2 (1833); and (*Terias fl.*) Sp. Gén. Lép. i. p. 671. n. 29 (1836).

Omrora (August and November), Ehanda (September), and Humbe (October). Eight examples; six males and two females.

Mr. Eriksson's specimens all show a difference from more southern examples in having the apical portion of the black border of the fore wings with a more prominent inward projection, so as more to resemble the corresponding markings in *T. butleri*, mihi. Moreover, two of the males taken in the summer at Humbe and Omrora respectively approach *T. butleri* in the absence of the usual under-side markings; and another male from Omrora (November) has the same markings only slightly developed.

82. *TERIAS BUTLERI*, Trim.

♂ ♀. *Terias butleri*, Trim. S.-Afr. Butt. iii. p. 23. n. 244 (1887).

Omrora (November), Humbe (October), and Okavango River (December). Nine examples; seven males and two females.

83. *TERIAS REGULARIS*, Butl.

♂. *Terias regularis*, Butl. Ann. & Mag. Nat. Hist. 4th ser. xviii. p. 486 (1876).

♂ ♀. *Terias regularis*, Trim. op. cit. p. 26. n. 246 (1887).

Ehanda (September). One female example.

It is with some doubt that I refer this specimen to the species named, as on the upperside it has the fore-wing border considerably narrower apically, and the hind-marginal nervular marks reduced (as in *T. desjardinsii*, Boisd., ♀) to dots, while on the underside there is a decided rufous tinge over the margins of the hind wings and the apex of the fore wings and the ordinary markings are obsolescent. Except in its being narrower apically, the fore-wing border agrees with that in the female *T. regularis*; and altogether the specimen is intermediate between this form and the closely-allied *T. desjardinsii*.

Genus *MYLOTHRIS*, Butl.84. *MYLOTHRIS AGATHINA* (Cram.).

♂. *Papilio agathina*, Cram. Pap. Exot. iii. pl. ccxxxvii. ff. D, E (1779).

Omrora (August) and Humbe (October). Three examples; two males and a female.

The two (♂ and ♀) specimens from Omrora are markedly smaller than usual; but the Humbe example is of full size.

Genus *PIERIS*, Schrank.85. *PIERIS MESENTINA* (Cram.).

♂. *Papilio mesentina*, Cram. op. cit. iii. pl. cclxx. ff. A, B (1780).

Ehanda (August-September), Humbe (October), and Omaramba-

Oamatako (January). Nine examples; seven males and two females.

Excepting two from the last-named locality, all these specimens are rather small.

86. *PIERIS SEVERINA* (Cram.).

♀. *Papilio severina*, Cram. op. cit. iv. pl. cccxxxviii. ff. G, H (1781).

Omrora (August) and Ehanda (August–September). Two male examples.

These two rather small males closely agree with the two from Limpopo River, noted in my 'South-African Butterflies' (iii. p. 70), having the underside of the hind wings clear lemon-yellow with the neuration almost without fuscous clouding.

GENUS *HERPÆNIA*, Butl.

87. *HERPÆNIA ERIPHIA* (Godt.).

*Pieris eriphia*, Godt. Encycl. Méth. ix. p. 157. no. 134 (1819).

♂. *Pontia tritogenia*, Klug, Symb. Phys. t. viii. ff. 17, 18 (1829).

Ehanda (August–September), Humbe (October), Okavango River (December), and Omaramba-Oamatako (January). Twenty-four examples; twenty-two males and two females.

The Ehanda specimens (twelve males and a female) all belong to the var. *melanarge*, Butl., in which the hind wings and the apex of the fore wings are on the underside suffused with dull ochry-reddish (in the paler parts with a carneous tinge). All the other specimens, taken in three different localities from October to January, are of the ordinary typical form; and there thus appears some evidence for thinking that the var. *melanarge*, met with only in August and September, will prove to be a form of the species peculiar to the cool or dry season<sup>1</sup>. The underside colouring is probably protective during the parched state of the earth and herbage.

GENUS *TERACOLUS*, Swains.

88. *TERACOLUS SUBFASCIATUS*, Swains.

*Teracolus subfasciatus*, Swains. Zool. Illustr. 2nd ser. iii. pl. 115 (1833).

Omrora (August), Ehanda (August–September), and Omaramba-Oamatako (January). Fourteen examples; thirteen males and one female.

These localities show a further range northward for this beautiful species than was previously known, Ehanda being in about 16° S. lat. The four male examples captured in August and September

<sup>1</sup> In Angola rain falls only during the hot season, from the end of October to the beginning or middle of May (see Monteiro, 'Angola and the River Congo,' ii. p. 233); and I am informed that similar climatal conditions prevail in Ovampo-land.

differ from those taken in January in the tint of the underside, which, instead of being greenish white, is decidedly yellowish, with a tinge of lilacine-pinkish over the lower two-thirds of the hind wings, thus resembling the female specimens from the Transvaal and Bamangwato noted in my 'South-African Butterflies' (iii. p. 92).

89. *TERACOLUS ERIS* (Klug).

♂. *Pontia eris*, Klug, Symb. Phys. t. vi. ff. 15, 16 (1829).

Omaramba-Oamatoko (January). One male example.

The solitary specimen in the collection agrees with the usual sub-typical form prevalent in South Africa, having the white hind-marginal spot (between 2nd and 3rd median nervules) and marks above the posterior angle of the fore wings.

90. *TERACOLUS AGOYE* (Wallengr.).

♂. *Anthopsyche agoye*, Wallengr. K. Sv. Vetensk.-Akad. Handl. 1857, Lep. Rhop. Caffr. p. 15. no. 11.

Ehanda (August-September). One female example.

The apical patch in the fore wings is larger than usual, and immediately preceded by a very faint tinge of yellow; its dark borders are very faint and diffused. In both fore and hind wings the discocellular terminal dot is more faintly shown, especially on the underside. This specimen is much worn.

91. *TERACOLUS REGINA* (Trim.).

♂ ♀. *Anthocharis regina*, Trim. Trans. Ent. Soc. Lond. 3rd ser. i. p. 520. n. 1 (1863).

Humbe (October). Two male examples.

These are of the typical form, having the underside of the hind wing almost white, with the slightest yellowish tinge.

92. *TERACOLUS EVENINA* (Wallengr.).

♀. *Anthopsyche evenina*, Wallengr. loc. cit. p. 12. n. 3 (1857).

♂. *Anthopsyche deidamia*, Wallengr. Wien. ent. Monatschr. 1860, p. 35. n. 7.

Omrorra (August), Ehanda (August-September), Humbe (October), and Omaramba-Oamatoko (January). Six examples; four males and two females.

These specimens belong to the variety A (*deidemioides*, Anriv.), described in my 'South-African Butterflies,' iii. p. 127, in which the blackish markings of the upperside are much reduced in the male, and the underside of the hind wings is in both sexes more or less tinged with pinkish-creamy irrorated with grey. Of the two females received, one, from Ehanda, has the dark markings of the upperside much fainter than usual, while the other, from Omaramba-Oamatoko, has them very dark and strongly developed.



93. *TERACOLUS SIMPLEX*, Butl.

♂. *Teracolus simplex*, Butl. Proc. Zool. Soc. 1876, p. 148. n. 71.

Ehanda (August–September). Two male examples.

94. *TERACOLUS ANTEVIPPE* (Boisd.).

♂ ♀. *Anthocharis antevippe*, Boisd. Sp. Gén. Léop. i. p. 572, pl. 18. f. 3 (1836).

Omaramba-Oamatako (January). One male example.

This male is a very fine individual, in perfect condition, and larger than any that I have previously measured (exp. 2 in. 1 line). There is only a very minute trace of black on the middle of the inner edge of the apical bright red patch of the fore wings, and the hind-marginal nervular black marks in the hind wings are sufficiently large to be contiguous, and so to form a very sharply dented narrow border. On the pure white underside, the nervules of the hind wings and of the apical half of the fore wings are blackish near the hind margin, as in those examples of *T. achine* (Cram.) which are mentioned in my 'South-African Butterflies' (iii. p. 133), as inhabiting the Transvaal and the Eastern South-tropical tracts.

95. *TERACOLUS ACHINE* (Cram.).

♀. *Papilio achine*, Cram. Pap. Exot. iv. pl. cccxxxviii. ff. E, F (1781).

Humbe (October), Okavango River (December), and Omaramba-Oamatako (January). Five female examples.

All these specimens exhibit on the white ground of the fore wings a slight tinge of yellow immediately before the inner edge of the orange apical patch; they approach the form *gavisa*, Wallengr., in their upperside marking of the fore wings, but (with the exception of one from Omaramba-Oamatako) are not nearly so heavily marked on the hind wings. On the underside, three of the five have the venuration in parts very finely marked with blackish, which is also a feature indicating approach to *gavisa*. They agree very nearly with specimens collected on the Marico River (in 1883) by Mr. F. C. Selous, and at the junction of that river with the Limpopo (in 1887) by Mr. Eriksson, and tend to strengthen the view that *gavisa* is not truly separable from *T. achine*.

96. *TERACOLUS GELASINUS*, Butl.

♂. *Teracolus gelasinus*, Butl. Proc. Zool. Soc. 1876, p. 143. n. 52 (1876).

Omrora (August). One male example.

The Angolan specimens on which this species was founded were two taken by the late Mr. J. J. Monteiro, respectively at the Quanza (August 1872) and Ambriz (October 1872). The species belongs to the group of which *T. दौरa*, Klug, is representative, its nearest ally being the Angolan *T. interruptus*, Butl., which is larger and has the black markings more developed. The male *T. gelasinus*

has no dusky stripe along the inner margin of the fore wings, but a male taken in Mashuna-land by Mr. F. C. Selous has a faint marking, representing the extremity of such a stripe, beyond the middle.

97. *TERACOLUS ANTIGONE* (Boisd.).

♂. *Anthocharis antigone*, Boisd. op. cit. p. 572. n. 19 (1836).

Ehanda (September). One male example.

This specimen has all the blackish markings faint and reduced; the inner-marginal stripe of the fore wings is represented only by a very indistinct spot beyond the middle.

98. *TERACOLUS PHLEGETONIA* (Boisd.).

♂. *Anthocharis phlegetonia*, Boisd. op. cit. p. 576. n. 25 (1836).

Omaramba-Oamatako (January). Seven examples; three males and four females.

A good deal of variation in size is shown by these males; the smallest has the inner-marginal black stripe of the fore wings relatively much reduced. In the females the spots in the apical patch of the fore wings vary in tint from dull reddish to dull yellowish grey.

99. *TERACOLUS THEOGONE* (Boisd.).

♂ ♀. *Anthocharis theogone*, Boisd. op. cit. p. 575. n. 23 (1836).

Ehanda (August–September) and Humbe (October). Two male examples.

There is no trace in either of these specimens of any longitudinal blackish markings on the upperside.

Genus *CALLIDRYAS*, Boisd.

100. *CALLIDRYAS FLORELLA* (Fabr.).

♀. *Papilio florella*, Fabr. Syst. Ent. p. 479. n. 159 (1775).

Ehanda (September), Omrora (November), Otiembora (November–December), and Okavango River (December). Six male examples.

Mr. H. L. Feltham's observation<sup>1</sup>, that the males of this butterfly that appear early in the season are all less distinctly freckled and hatched on the underside than those of the midsummer and autumnal brood, was borne out by specimens which he sent to me, and receives further confirmation from Mr. Eriksson's examples. I noted that Mr. Feltham's specimens (from Griqualand West) presented the further peculiarities of smaller size (*exp. al.* 2 in.  $2\frac{1}{2}$ –6 lin.) and a yellower tint on the underside; and all three distinctive characters are presented by Mr. Eriksson's Ehanda male. The Omrora example (November) is also but faintly marked on the underside; the one from Otiembora is larger and more distinctly marked; and the two taken on the Okavango River in December are full-sized and strongly marked beneath.

<sup>1</sup> See my 'South-African Butterflies,' iii. p. 187, footnote.

## Subfamily PAPILIONINÆ.

## Genus PAPILIO, Linn.

## 101. PAPILIO ANTHEUS, Ciam.

*Papilio antheus*, Cram. Pap. Exot. iii. pl. cccxxiv. ff. B, C (1779).

Ehanda (August–September). Fifteen male examples.

These specimens, except in not being so large, appear to approach the variety from Lake Nyanza separated by Mr. Butler (Ann. & Mag. Nat. Hist. 5th ser. xii. p. 106, 1883) as *P. lurinus*, having most of the pale green markings (especially the discocellular wavy striæ of the fore wings) wider than usual, and the striæ just referred to (particularly the outermost of them) more strongly bisinuated.

## 102. PAPILIO CORINNEUS, Bertol.

*Papilio corinneus*, Bertol. "Mem. Acad. Sci. Bologn. 1849, p. 9, t. i. ff. 1–3."

Omrora (August). Nine male specimens.

Considerably smaller than usual, expanding from 2 in. 6 lin. to 3 in. One specimen is a notable aberration in colouring, the basal red in both fore and hind wings on the underside being entirely absent, and replaced by the ochre-yellow of the ground-colour.

## 103. PAPILIO MORANIA. (Plate IX. fig. 21, ♂.)

*Papilio morania*, Angas, Kafirs. Illustr. pl. xxx. f. 1 (1849).

Omrora (August). Eighteen male examples.

These specimens, like those of *P. corinneus*, are much below the usual size, expanding from 2 in.  $4\frac{1}{2}$  lin. to 6 lin. only. They all belong to a variety approaching *P. corinneus* in the following particulars, viz.: in the fore wings the terminal discocellular white marking is unequally divided by a curved oblique black streak, and the external superior projection of the large white patch is considerable; and in the hind wings the white field is more restricted than in ordinary *morania*, having a somewhat broader hind marginal black border. Nine of the specimens want the small subbasal discocellular white spot in the fore wings, and two others have it very faintly expressed; whereas in typical *morania* this spot is better developed than in *corinneus*<sup>1</sup>.

When compared with the typical *P. morania* of the south-eastern coast, this Omrora variety is most interesting, as possibly indicating one of the stages in the differentiation of the species from *P. corinneus*, which is itself so near an ally of the more northern *P. pyludes*, Fabr.

<sup>1</sup> In connection with these Omrora specimens, which, though on the whole nearer to *P. morania*, exhibit decided variation in the direction of *P. corinneus*. I note here, on the other hand, a male example of the latter (sent to me from Malvern, Natal, by Mr. Cecil N. Barker) which approaches *P. morania* in the markings of the underside of the hind wings, where the four white spots of the submarginal series are nearer to the white field than usual, and are also blackish-edged internally, and the inner marginal red is much fainter towards its extremity.

104. *PAPILIO DEMOLEUS* (Linn.).

*Papilio demoleus*, Linn. Mus. Lud. Ultr. Reg. p. 214. n. 33 (1764), and Syst. Nat. i. 2, p. 753. n. 46 (1767).

Omrora (August) and Ehanda (August–September). Ten male examples.

## Family HESPERIDÆ.

## Genus PYRGUS, Westw.

105. *PYRGUS VINDEX* (Cram.).

*Papilio vindex*, Cram. Pap. Exot. iv. pl. cccliii. ff. G, H (1781).

Omrora (August) and Omaramba-Oamatako (January). Three male examples.

106. *PYRGUS DROMUS*, Plötz.

*Pyrgus dromus*, Plötz, Mitt. naturw. Ver. Neu-Vorpomm. u. Rügen, 1884, p. 6. n. 13.

Ehanda (August–September). One male example.

107. *PYRGUS MAFA*, Trim.

*Pyrgus mafa*, Trim. Trans. Ent. Soc. Lond. 1870, p. 386, pl. vi. f. 12.

Ehanda (September). One male.

The single specimen that I believe is referable to this species is smaller than usual, expanding barely 11 lin. The upperside differs in no respect from ordinary *P. mafa*, but on the underside of the hind wings the ground-colour is duller and paler, and the subbasal and median white stripes are rather narrower, more widely interrupted (so as to present a more macular appearance), and (in common with the submarginal series of white spots) with much broader and darker brownish-grey edging.

108. *PYRGUS DIOMUS*, Hopff.

*Pyrgus diomus*, Hopff. Monatsb. Akad. Wissensch. Berl. 1855, p. 643; id. Peters, Reise nach Mossamb., Ins. p. 420, t. xxvii. ff. 9, 10 (1862)<sup>1</sup>.

Ehanda (August–September) and Omaramba-Oamatako (January). Ten examples; nine males and one female.

The two Ehanda males differ from the rest (and from all other specimens that have come under my notice) in the narrowness of the median white oblique band on the underside of the hind wings, which in one example is not more than half the usual width.

<sup>1</sup> I have not seen any specimen that entirely agrees with Hopffer's figure of the underside, the white bands of the underside of the hind wing being in every instance more oblique. The direction of the bands in this figure is intermediate between that found in *P. dromus*, Plötz, and the decidedly oblique course just referred to.

109. *PYRGUS SECESSUS*, n. sp. (Plate IX. fig. 22, ♂.)

Allied to *P. sataspes*, Trim.

♂. *Exp. al.* 11 lin. to 1 inch.

Fuscous brown, with small dull white spots; in submarginal series the spots are minute and obsolescent, except two in hind wing (respectively above and below 2nd median nervule). *Fore wing*: three discocellular spots, of which the middle one is very small and situated close to subcostal nervure; discal series of spots in number and arrangement as in *P. sataspes*, but 5th spot largest and more quadrate, while 6th and 7th are much reduced in size. *Hind wing*: a small subbasal discocellular spot; median marking reduced to a moderate-sized terminal discocellular spot, with a rather smaller spot immediately below it. **UNDERSIDE.**—*Hind wing and apex of fore wing dull yellow-ochreous with a reddish-brown tinge, the former with the median band very dull creamy (in one of the two examples much darker, scarcely distinguishable from basal ground-colour), rather broad, oblique, almost straight, irregularly denticulated externally, and bounded internally by three separate brown marks.* *Fore wing*: middle discocellular spot quite as large as the two others. *Hind wing*: subbasal cellular spot, and two others above and a little beyond it (in one specimen obsolescent), indicate an irregular subbasal transverse band; median band externally bounded by dark brown, which gradually shades off into yellow-ochreous; a submarginal sinuated series of minute paler spots very faintly indicated.

Among the more marked distinctions of this form from *P. sataspes* are (besides the dull tint, straightness, and even width throughout of the much broader median band of the underside of the hind wings) the presence in both fore and hind wings of a subbasal discocellular spot, the different relative sizes of the lower spots of the discal series in the fore wings, and the ill-defined, narrow, interrupted (instead of dark, continuous, well-developed) internal border of the median band of the hind wings on the underside. The possession of a subbasal cellular white spot in both fore and hind wings is usual in the genus, but *P. sataspes*, *P. nanus*, and the aberrant *P. sandaster*, Trim., want this feature.

Omroma (10th–25th August). Two male examples.

## GENUS PAMPHILA, Fabr.

110. *PAMPHILA CALLICLES* (Hewits.).

♀. *Cyclopides callicles*, Hewits. Descr. New Hesp. ii. p. 42. n. 6 (1868); and Exot. Butt. v. pl. 59, ff. 10, 11 (1874).

Omaramba-Oamatako (January). One female example.

111. *PAMPHILA MORANTII*, Trim.

♀. *Pamphila morantii*, Trim. Trans. Ent. Soc. Lond. 1873, p. 122; and ♂, S.-Afr. Butt. iii. p. 311, pl. 12. f. 3 (1889).

Ehanda (August–September), Okavango River (December), and Omaramba-Oamatako (January). Five male examples.



All these have the underside yellow-ochreous, without any ferruginous tinge, belonging to the variation *P. ranoha*, Westw. In one of the two Okavango specimens the small black spots of the underside are wanting, but in the other, though smaller than usual, they are distinct.

112. *PAMPHILA OBUMBRATA*, n. sp. (Plate IX. fig. 23, ♂.)

Closely allied to *P. hottentota* (Latr.).

*Exp. al.* (♂) 1 in.  $1\frac{1}{2}$  lin.; (♀) 1 in. 1 lin.

♂. Pale dull greyish brown; inferior half of hind wing and basal half of fore wing suffused with greenish ochreous-yellow; on lower discal area of fore wing, between 2nd median nervule and submedian nervure, a very large, rounded, highly glossy, fuscous-grey sexual badge, formed of small densely packed tilted scales. **UNDERSIDE.**—Very dull pale yellowish grey. *Fore wing*: two exceedingly faint paler discal spots between 1st and 3rd median nervules (near their origin). *Hind wing*: a discal series of very faint elongate confluent spots, from costa to submedian nervure, sharply angulated on 2nd subcostal nervule.

♀. Without any yellow suffusion. *Fore wing*: five small yellowish spots in discal series, viz.: two minute ones together close to costa, and three obliquely placed between 3rd median nervule and submedian nervure. *Hind wing*: a faint trace of a macular yellowish-white streak in upper part of disk. **UNDERSIDE.**—Slightly yellower than in male, the hind-wing markings less indistinct. *Fore wing*: besides the five discal spots of upperside, there is a trace of two additional minute spots, beyond the rest, between 1st radial and 3rd median nervules.

Besides the extraordinary sexual badge, a more pointed apex characterizes the fore wing in the male, and the hind wing is more prominently lobate at the anal angle than in *P. hottentota*. The female example is much worn, but appears to be singularly close to the typical female *P. hottentota*, except in the failure of yellow on both surfaces.

Ehanda (August–September). Two examples; a male and a female.

113. *PAMPHILA OCCULTA*, n. sp.

Allied to *P. hottentota* (Latr.) and *P. lugens*, Hopff.

*Exp. al.* (♂) 1 in.  $1\frac{1}{2}$ –3 lin.; (♀) 1 in. 3 lin.

♂. Dull brown. *Fore wing*: a fuscous-brown cloud from base to beyond middle of costa, covering discoidal cell and extending downward to submedian nervure about middle; commencement of a discal macular series very faintly indicated by a costal transverse row of three minute pale spots, in the customary position beyond extremity of discoidal cell. **UNDERSIDE.**—Very much paler; hind wing and costal and apical area of fore wing rather sparsely sprinkled with hoary scales. *Fore wing*: usual discal series of seven small whitish spots tolerably distinct. *Hind wing*: an elbowed discal series of

five or six indistinct small whitish spots; inner marginal fold glossy pale grey.

Palpi, thorax, and abdomen beneath uniform dull whitish.

♀. Uniform pale dull brown. *Fore wing*: discal macular series as on underside of male in position and arrangement, but larger, whiter, quite distinctly defined, and subvitreous. **UNDERSIDE.**—Very slightly tinged with yellowish. *Fore wing*: discal spots as on upperside. *Hind wing*: discal spots more distinct than in male.

This exceedingly obscure little species is distinguished from *P. hottentota* by its much duller (and in the male darker) upperside without any yellowish suffusion, and by the want (in the male total) of yellow colouring on the underside, as well as by the small size, separateness, and whitish tint of the discal series of spots on the underside of the hind wings; the whitish instead of yellow tint of the underside of the palpi and body is also a distinction, and the marked prolongation of both the fore and hind wings more resembles that presented by *P. monasi*, Trim. The colouring of *P. occulta*, however, is not nearly so dark as that of *P. lugens*, Hopff., which is also a larger butterfly, with broader and blunter wings, and has the underside almost as dark as the upperside. But for the almost entire suppression of the discal spots of the fore wings in the male, *P. occulta* looks much like a miniature of *P. fatuellus*, Hopff.

I have received two Transvaal males of this insect, one without locality or date, but the other captured at Barberton by Mr. C. F. Palmer early in 1888; and a third, taken at Potchefstroom by Mr. T. Ayres, which differs from all the rest in being totally devoid of the usual small indistinct spots.

Omrora (August), Otiembora (November–December), and Okavango River (December). Two male and two female examples.

114. *PAMPHILA MORITILI* (Wallengr.).

♀. *Hesperia moritili*, Wallengr. K. Sv. Vet.-Akad. Handl. 1857, Lep. Rhop. Caffr. p. 49. n. 4.

Humbe (October). One male example.

115. *PAMPHILA AYRESII*, Trim.

♂ ♀. *Pamphila ayresii*, Trim. S. Afr. Butt. iii. p. 321, pl. 12. f. 1 (1889).

Omrora (August) and Ehanda (August–September). One male and two female examples.

116. *PAMPHILA BORBONICA* (Boisd.).

*Hesperia borbonica*, Boisd. Faune Ent. de Madag. p. 65. n. 3, pl. 9. ff. 5, 6 (1833).

Otiembora (November–December). One male example.

117. *PAMPHILA MOHOPAANI* (Wallengr.).

♀. *Hesperia mohopaani*, Wallengr. loc. cit. p. 48 (1857).

Ehanda (September). One male example.

## Genus ABANTIS, Hopff.

118. ABANTIS VENOSA, Trim. (Plate IX. fig. 24, ♂.)

♂. *Abantis venosa*, Trim. S.-Afr. Butt. iii. p. 339. n. 361 (1889).

*Leucochitoneu umvulensis*, E. M. Sharpe, Ann. & Mag. Nat. Hist. 6th ser. vol. vi. p. 348 (Oct. 1890).

Omrora (August) and Ehanda (August–September). Three male examples.

These specimens have already been described, as “variety A” of the species, in my work above quoted, one of the two Ehanda examples being further noted (p. 340, footnote) as wanting the vitreous spots of the fore wings and having the white and black on the underside of the hind wings obsolescent.

119. ABANTIS PARADISEA (Butl.).

♂. *Leucochitonea paradisea*, Butl. Trans. Ent. Soc. Lond. 1870, p. 499; and Lep. Exot. p. 167, pl. lix. f. 8 (1874).

Ehanda (September). One male example.

The white markings in this specimen have a decided yellowish tinge, giving it some resemblance to the female.

120. ABANTIS ZAMBESINA, Westw.

♂. *Hesperia (Oxyntera) zambesina*, Westw. Thes. Ent. Oxon. p. 183, pl. xxxiv. f. 9 (1874).

Omrora (August) and Ehanda (August–September). Seventeen male examples.

I noted these specimens of this extremely beautiful Hesperid last year in vol. iii. of my work above cited (p. 344). In a footnote I called attention to the circumstance that the sides of the abdomen are pure white, and suggested that their being dull yellowish in the type-specimen figured by Westwood was due to discoloration. Since then one of Mr. Eriksson's examples has changed from white to ochreous-yellow in the part mentioned.

121. ABANTIS LEVUBU (Wallengr.).

♂. *Leucochitonea levubu*, Wallengr. op. cit. p. 52 (1857).

♂ ♀. *Abantis levubu*, Trim. S.-Afr. Butt. iii. p. 345, pl. 12. f. 5 [♂] (1889).

Omrora (November), Otiembora (November–December), and Omaramba-Oamatako (January). Eight male examples.

In the fore wings the black on margins and nervules is more developed than in specimens received from more southern tracts.

## Genus PTERYGOSPIDEA, Wallengr.

122. PTERYGOSPIDEA MOTOZI, Wallengr.

*Pterygospidea motozi*, Wallengr. op. cit. p. 53 (1857).

Ehanda (August–September). Two male examples.

One of the specimens is of a greyer tint than usual, especially on

the underside, where the pale ochre-yellow tint is reduced to a mere tinge of the pale greyish-brown ground. The other, although a male, agrees with the female examples noted in my 'South-African Butterflies' (iii. p. 358)—from Natal and Delagoa Bay—as having the vitreous spots of the fore wing much reduced in size; it also has, to a greater extent, the sparse discal hoary scaling on the upperside of both fore and hind wings which characterizes those examples. From the occurrence of other examples of both sexes recently on the Natal coast, I am disposed to think it not unlikely that this supposed variety of *P. motozi* may prove to be a distinct species.

123. PTERYGOSPIDEA JAMESONI. (Plate IX. fig. 25.)

*Antigonus jamesoni*, E. M. Sharpe, Ann. & Mag. Nat. Hist. 6th ser. vol. vi. p. 348 (Oct. 1890).

Allied to the North-Indian *P. bhagava* (Moore).

*Exp. al.* 1 in. 5–7 lin.

♂. *Pale ochre-yellowish-brown, with conspicuous white vitreous black-edged spots in fore wing, and a very broad median white band (marked externally with black spots) in hind wing; cilia white, interrupted at extremity of nervules with brown in fore wing and with black in hind wing. Fore wing:* terminal discocellular spot large, more or less rounded; spots in discal row nine, larger than usual, all very distinct, arranged in three groups, viz.: two smallest, united, next costa; three somewhat larger, rounder, separate, forming a curved row below and beyond first two; and four below discoidal cell, of which the uppermost (between 3rd and 2nd median nervules) is separate and of moderate size, while the remaining three (of which the uppermost, between 2nd and 1st median nervules, is the largest on the wing) are more or less closely united in a slightly oblique line beneath terminal discocellular spot. *Hind wing:* basal area of a darker tint; inner edge of broad white band well-defined, almost straight, outer edge rather suffused with ground-colour on nervules; black spots very conspicuous, forming a roughly semi-circular series of nine, of which the first is on the brown *inner* edge of white band (between costal and subcostal nervules), but all the rest, from costal to submedian nervure, a little within the outer edge. **UNDERSIDE.**—Paler, the ground-colour without ochre-yellow tinge. *Fore wing:* edgings of vitreous spots very attenuated and in parts obsolete; some whitish scaling near base and along inner margin. *Hind wing:* basal area greyish white except on costal border; white band extending rather further beyond black spots, which are in five specimens rather smaller (especially the 3rd, 4th, and 5th).

Head and body of ground-colour above (the four terminal abdominal segments with slender white half-rings); white beneath, including palpi. Antennæ black above, whitish beneath.

This delicately tinted species clearly belongs to the group named *Satarupa* by Moore (Proc. Zool. Soc. 1865, p. 780), which is characterized by the hind wings presenting on both surfaces a broad

median white or whitish band bearing black spots externally, and also by the completeness and strong upper curve of the discal series of vitreous spots in the fore wings. Though not distantly related to *P. bhagava* (Moore), *P. jamesoni* is nearer to an allied form, from Coimbatore and Moulmein, in the British Museum, but differs from the latter in its paler yellower ground-colour, larger fore-wing spots (with better developed black edges), whiter, inferiorly narrowed (instead of widened) hind-wing band, and varied instead of plain cilia.

Miss E. M. Sharpe describes this species as inhabiting the Umvuli, a river in Ma-huna-land.

Omrora (August). Six male specimens.

#### Genus HESPERIA, Fabr.

##### 124. HESPERIA FORESTAN (Cram.).

*Papilio forestan*, Cram. Pap. Exot. iv. pl. cccxci. ff. E, F (1782).  
Otiembora (November–December). One male example.

##### 125. HESPERIA PISISTRATUS, Fabr.

*Hesperia pisistratus*, Fabr. Ent. Syst. iii. 1, p. 345. n. 311 (1793).

Omrora (November). One female example.

#### EXPLANATION OF THE PLATES.

##### PLATE VIII.

- Fig. 1. *Acræa atolmis*, ♂, p. 63.  
 2. — *atolmis*, ♀.  
 3. — *atolmis*, var. ♀.  
 4. — *atolnis*, ♂, Summer or Wet-Season Form (*acontias*, Westw.).  
 5. — *felina*, ♂, p. 65.  
 6. — *felina*, ♀.  
 7. — *onerata*, ♂, p. 67.  
 8, 8 a. — *onerata*, ♀.  
 9. — *asema*, ♂, p. 68.  
 10, 10 a. — *asema*, ♀.

##### PLATE IX.

- Fig. 11. *Acræa ambigua*, ♀, p. 70.  
 12. *Crenis natalensis*, var. ♂, p. 76.  
 13. *Deudorix obscurata*, ♂, p. 84.  
 14. *Hypolycaena cæculus*, ♂, Summer or Wet-Season Form, p. 85.  
 15. *Aphnæus erikssoni*, ♀, p. 86.  
 16. — *modestus*, ♂, p. 87.  
 17. *Zeritis damarensis*, ♂, p. 90.  
 18. *Erikssonia acraëina*, ♂, p. 92.  
 19. — *acraëina*, ♀.  
 20. — *acraëina*, var. ♂.  
 21. *Papilio morania*, var. ♂, p. 100.  
 22. *Pyrgus secessus*, ♂, p. 102.  
 23. *Pamphila obumbrata*, ♂, p. 103.  
 24. *Abantis venosa*, ♂, p. 105.  
 25. *Pterygospidea jamesoni*, ♂, p. 106.